

NEXT ANNUAL SESSIONS

California Medical Association, Del Monte, April 24-27, 1933
 American Medical Association, Milwaukee, Wisconsin, June 12-16, 1933

CALIFORNIA

AND

WESTERN MEDICINE

Owned and Published Monthly by the California Medical Association

FOUR FIFTY SUTTER, ROOM 2004, SAN FRANCISCO

ACCREDITED REPRESENTATIVE OF THE CALIFORNIA AND NEVADA MEDICAL ASSOCIATIONS

VOLUME XXXVII
 NUMBER 3

SEPTEMBER • 1932

50 CENTS A COPY
 \$3.00 A YEAR

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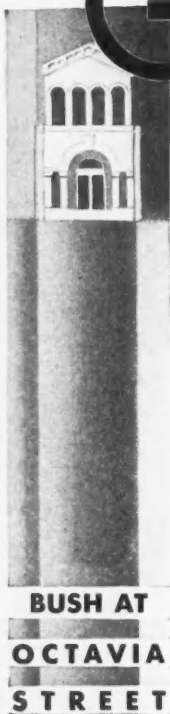
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VOLUME XXXVII

SEPTEMBER, 1932

No. 3

POSTURE DURING ANESTHESIA— ITS EFFECT*

By ADENA C. DUTTON, M. D.
San Francisco

A PATIENT undergoing an operation entrusts his life and safety to the surgeon and anesthesiologist. The obligation of these physicians is to protect this life as tenderly and wisely as the obstetrician cares for a new-born infant. An artist's touch and interest are needed to fulfill this trust. The conduct of the operation is made easier by having the posture as nearly correct as possible.

As the teaching of good posture in clinics and in schools is a part of preventive medicine,¹ so the assurance of good posture during anesthesia is an important means of preventing undesirable complications or dangerous sequelae. The additional relaxation secured from careful, correct posture facilitates the entire operative procedure.

THE IDEAL OPERATING TABLE

An ideal operating table is one which is constantly and in every position under perfect control. It is best to have the table top locked in any position obtainable by its mechanism, making accidents through carelessness practically impossible. The anesthesiologist should be familiar with all the possibilities and limitations of the adjustments. Adequate brakes are essential. Doctor Harvey,² in his chapter on complications in surgery, states that many of the discomforts following operations are the result of prolonged immobilization upon the operating table during anesthesia. "With a poorly padded table, the points of contact will be sore for some time afterward, and if the extremities happen to hang over the edge or are too tightly bound down by the retention strapping, stiff and tender joints and muscles are the result." It is very important that a thick, firm mattress^{2, 12} be used. Having the conscious patient resting comfortably on the table is an aid to smooth induction of anesthesia. Cloth ties, one lengthwise and the other crosswise, may be used to hold the mattress in place. When these are tied securely the patient does not shift position, rendering shoulder crutches unnecessary. A guard with a curved base slips under the mattress which holds it in place. Having the guard freely movable makes it possible to obtain the correct relationship to the patient instead of placing the patient to suit the guard of limited positions.

A canvas lifter, about one yard long, may be placed on top of the mattress where it will support the heaviest part of the patient in moving him to different positions while on the table and in lifting him from the table to the ambulance. A longer lifter with poles in hems at the sides placed on the ambulance with the covering blanket over it facilitates the moving of patients and distributes the weight evenly. A death is reported to have occurred from the accidental sudden dropping back of the head of an unconscious patient, proving the need of adequate support.

OPERATIVE POSITIONS

In 1924 Doctor Palmer³ presented to the Anesthetic Section modifications of some of the operative positions. A consideration of these and other positions in common use with changes which increase relaxation and add to the patient's comfort follows.

Dorsal Position.—The usual dorsal position with the patient flat on his back causes much strain. The pelvis is extended and the lumbar spine is elevated, causing the abdominal wall to be stretched. Thus the capacity of the abdomen is lessened and the abdominal pressure is increased. Respiration is interfered with; the diaphragm and heart, having extra work, become fatigued more readily. The abdominal muscles are used to supplement respiration by producing forced expiration.⁴ It is the desire of every surgeon to manipulate the intestines as little as possible, but this cannot be accomplished if the intra-abdominal pressure is too great. The knees are in a position of hyperextension, which may result in postoperative pain (Fig. 1).

There are modifications which aid in relieving this strain. One or two pillows of proper size, according to the depth of the chest, should be placed to support the head and relax the neck. Too much flexion of the head⁵ throws the base of the tongue against the pharynx and may produce stertor and obstruct breathing. Extreme extension limits the natural protective action of the epiglottis. It makes swallowing difficult or impossible and increases the possible danger of entry of mucus and foreign substances into the larynx (Fig. 2).

Tension on the abdomen can be lessened by flexing the pelvis, using a bolster under the knees and, further, by raising the thigh and leg portions of the table. An awkward angle in which to operate results if the thighs are raised beyond a practical limit, which varies, of course, with the con-

* Read before the Anesthesiology Section of the California Medical Association at the sixtieth annual session, San Francisco, April 27-30, 1931.

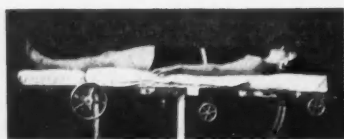


Fig. 1.—Usual dorsal position.



Fig. 2.—Modified dorsal position.



Fig. 3.—Modified dorsal position with chest pillow.

tour of the patient and the nature of the operation. In some instances, still more relaxation may be obtained by elevating the thorax with another firm pillow (Fig. 3).

The advantages of this correct dorsal position are readily seen. The anterior abdominal wall is relaxed, the abdominal muscles are not needed for forced expiration, respiration is quieter, and less fatigue results. Manipulation of the intestines is minimized, lighter anesthesia is made possible, and shorter operating time is required.

The anesthetic guard, suitable head pillow, thick mattress, cloth tie, small canvas lifter, and bolster are shown in Fig. 4.

Trendelenburg Position.—The customary Trendelenburg position (Fig. 5) increases the tension

This corrects only a small part of the trouble and has the positive disadvantage of increasing the height of the arterial blood column above the heart, giving that organ more work to do." He states: "It would seem that what the lumbar spine wants in order not to be set aching after prolonged operation is not more support, as some have averred, but more relaxation, such as is given by flexion of the pelvis."

Modified Trendelenburg Position.—As in the dorsal position, having a bolster placed under the knees and having the pelvis flexed by elevating the thighs and supporting the legs relieves the abdominal tension in the Trendelenburg position. From twenty to thirty degrees of elevation is usually sufficient. It is a common error to lower

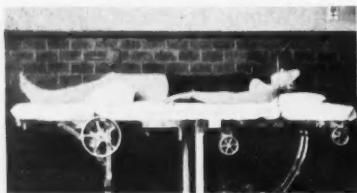


Fig. 4.—Guard, head pillow, thick mattress, cross-tie, small canvas lifter, and bolster.

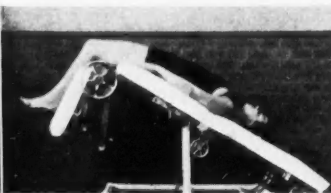


Fig. 5.—Customary Trendelenburg position.

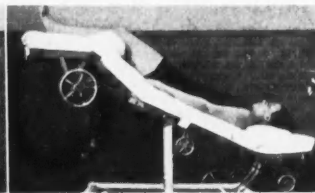


Fig. 6.—Modified Trendelenburg position.

of the abdominal muscles, and all of the disturbances brought about by similar strain in the ordinary dorsal position are intensified. There is a greater tendency to prolapse of the intestines, and it is a serious disadvantage to the patient because more trauma than necessary may result. When the intestines fall toward the epigastrium and, in addition, are packed off with gauze, the function of the diaphragm may be hindered. This interference with adequate respiration may lead to cardiac failure. In his paper on "Flexion of the Pelvis in the Trendelenburg Position," Doctor Rixford⁴ brought out the fact that some surgeons attempted "to overcome the disadvantages of the conventional Trendelenburg position by keeping the legs extended when the table is tilted, holding the patient from sliding by means of shoulder rests.

the legs as far as possible after the thighs are raised. When this is done, the abdominal muscles are again made tense.

Abdominal relaxation is not aided by the use of a back pillow though in some instances it may decrease postoperative backache (Figs. 6 and 7).

Any change of posture while the patient is under an anesthetic should not be made suddenly; this is particularly true when the Trendelenburg position is used. There is less alteration in the blood pressure when the patient is moved to the Trendelenburg position from the modified dorsal position than when the change is made directly. Shock⁵ is seldom seen in patients who are operated on in this position since the blood pressure rises sufficiently to counteract any fall caused by the incidental trauma. Doctor Gatch⁶ concluded

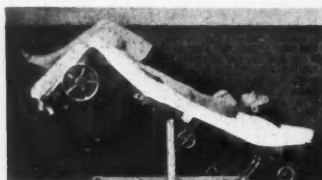


Fig. 7.—Modified Trendelenburg position with extreme lowering of legs.

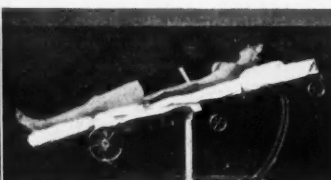


Fig. 8.—Usual reverse Trendelenburg position.



Fig. 9.—Modified reverse Trendelenburg position.

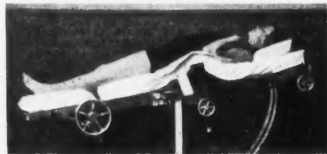


Fig. 10.—Usual position for gall-bladder operation.

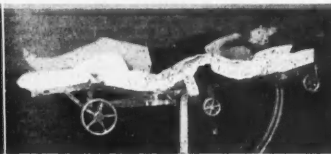


Fig. 11.—Modified position for gall-bladder operation.

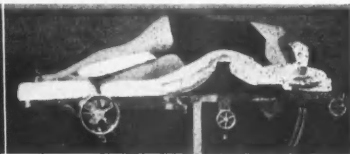


Fig. 12.—Lateral recumbent position for kidney operations.

from animal experiments on circulatory disturbances due to laparotomy, posture, and anesthesia that life is possible when the intra-abdominal pressure has been reduced to that of the atmosphere, only when the return of blood to the heart is assisted by gravity and when the animal is not required to make any exertion.

The Trendelenburg position should not be used in the presence of cyanosis or struggling and should be used with caution in a patient whose heart is diseased. This position is of great value to the anesthetist in securing postural drainage⁷ in patients with considerable mucus and may be desirable in some patients after operation, especially when a degree of shock is present. The return to the horizontal position^{6, 8} may lead to collapse if made suddenly.

The modified Trendelenburg position gives the pelvic exposure desired without unduly crowding the abdominal contents and abdominal pads against the diaphragm, neither embarrassing the heart nor interfering with quiet respiration. This can be accomplished without such extreme lowering of the head of the table. DaCosta⁸ states that flexion of the legs often causes much stiffness and may predispose to embolism. These complications are practically eliminated by the suggested modification of the Trendelenburg position. The possibility of having this greater relaxation by using this posture frequently allows the choice of anesthetic to be the less toxic nitrous oxid instead of the more toxic ether.

The reverse Trendelenburg, the lateral recumbent, the prone and the extreme lithotomy positions present characteristic difficulties which may be overcome to some extent by certain modifications.

Reverse Trendelenburg Position.—In the reverse Trendelenburg or Fowler position, there is increased danger of aspiration unless suction facilities are at hand, since drainage by turning the head is ineffective. Doctor Miller,⁹ in his tabulation of one thousand cases to determine the effect of posture on the blood pressure during operation under anesthesia found that in the reverse Trendelenburg position there was a marked tendency to decline in the systolic pressure. Doctor Gatch,⁶ experimenting on animals on the peripheral theory of shock, found that "a dog when etherized till its muscles are completely relaxed will die in the head-up posture, while it will be little affected by the same if unetherized or etherized lightly." He reports that Doctor Mann,¹⁰ in his investigation of shock concluded that experimental surgical shock is caused almost entirely by accumulation of blood in the abdominal viscera; that such an accumulation may be

brought about by deep anesthesia alone, especially when associated with the head-up posture. Doctor DeCourcy,¹¹ in his paper on "Venous Stasis as a cause of Postoperative Embolism," states that Lockhart-Mummery¹² believes that pulmonary embolism is frequent after gynecologic and gall-bladder operations largely because of the unnatural position in which the patient is placed upon the table. His own observations show that the Fowler position is especially conducive to the later development of embolism. He finds that elevation of the pelvis and lower extremities after operations below the diaphragm prevents venous stasis and in this way reduces the danger of postoperative thrombosis and embolism. Doctor Harvey,² in writing of the circulatory complications in surgery, says that the treatment of thrombophlebitis, undoubtedly induced indirectly as a result of operative procedures and of embolism, is prophylactic, suggesting frequent shifting of the position of the legs following, and the avoidance of a dependent position, during operation.

It is possible to better the entire anesthetic condition and increase the relaxation in the reverse Trendelenburg position by flexing the thighs, raising the legs and giving added support with a bolster under the knees. The strain on respiration is greatly diminished (Figs. 8 and 9).

Gall-Bladder Operations.—Certainly the position for gall-bladder operations is unnatural and is likely to result in postoperative backache. The modifications suggested effect a position of less strain. It is always important that the body elevator be not raised beyond a reasonable height and lowered as soon as possible. With this aid to relaxation of better posture, deep anesthesia, which promotes venous stasis, can be avoided and an an-



Fig. 13.—Roentgenogram showing crowding of vital organs in kidney operations position.

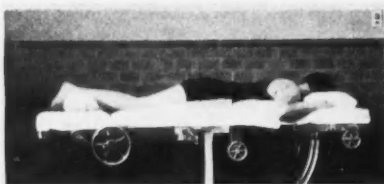


Fig. 14.—Prone position.

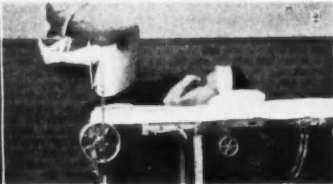


Fig. 15.—Usual lithotomy position.

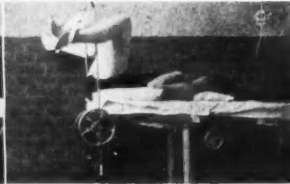


Fig. 16.—Lithotomy position modified by hip pillows.

esthetic so light as to preserve muscular tone is possible, lessening the liability of shock (Figs. 10 and 11).

Kidney Operation.—The position used in kidney operations presents added difficulties when the incision is on the right side. The patient lies on his left side, the arm supported on a board slipped under the mattress and extending the proper distance. A pillow relieves the pressure of the upper leg and serves to aid in maintaining the position. When the body elevator is raised, the heart is crowded and, because of the limitation of movement of the ribs, there is extra work for the diaphragm in breathing. The left lung is decidedly hindered in its movements, and this circulatory and respiratory embarrassment may readily lead to shock. The effect upon the circulatory system⁸ of the operation may act to increase the circulatory depression, secondary to the result of posture. To overcome this the body elevator should be raised only to the point of giving adequate exposure and lowered the first minute possible (Figs. 12 and 13).

Operations on Spine.—In operations on the spine, when the patient is in the prone position, less shock follows if there is adequate breathing space. The adult patient is anesthetized on his face in a comfortable attitude, having firm hair pillows under each shoulder and each anterior prominence of the pelvis. In orthopedic surgery on children¹³ it is best to induce anesthesia in a comfortable dorsal position, changing to the operative position desired after full anesthesia is obtained. In some instances a pillow under the shoulder and another under the hip on the same side, will lift the body sufficiently to make breathing easy and also give a satisfactory position. This advantage of unimpaired respiration is very real since the greatest danger in ankylosing operations of the spine is considered¹⁴ by some to be

the anesthesia. Circulatory depression would soon follow inadequate respiratory movements if prolonged unduly. Having the mouth open when any jarring of the spine occurs during the operative procedure distributes the impact. The harmful effects of the required posture are minimized by attention to these details (Fig. 14).

Lithotomy Position.—When an operation is to be performed with the patient in the lithotomy position, it is advisable that induction of the anesthetic be made in the dorsal position and full anesthesia secured before the legs are placed in the supports. A fatality,¹⁵ due to "cardiac dilatation," has been reported when the patient was in the lithotomy position during induction. In this position the heart is considerably embarrassed by pressure of the abdominal viscera upon the diaphragm which may also interfere with respiration. The systolic blood pressure tends to increase.⁹ When the operation is necessarily prolonged as in vaginal plastic work, the strain of this position is great. With the relaxation of the muscles from anesthesia,² unusual strain is placed upon the joint capsules and the cartilaginous structures and leads to varying degrees of postoperative discomfort.

Firm hair pillows placed at the side and a little under the hips give the thighs and legs a beneficial support, relieving the abnormal weight placed on the joints. Less postoperative pain has been reported since the use of these pillows (Figs. 15 and 16). In an effort to secure the proper operative position the patient is often brought down too far over the edge of the table. This causes considerable backache following the operation and temporary or permanent sacro-iliac damage may be severe, leading in one known instance to legal suit against a hospital (Fig. 17).

Operations on Prostate.—The position for operations on the prostate, being an extreme lithotomy position, sometimes combined with a degree of Trendelenburg, crowds the heart and lungs still more, as is shown in the roentgen ray. The shoulder braces must necessarily be well padded and securely held to prevent bruising and slipping. A slow, gentle return to the horizontal position is essential to avoid undue lowering of the patient's resistance, especially since most of these patients are aged (Figs. 18 and 19).

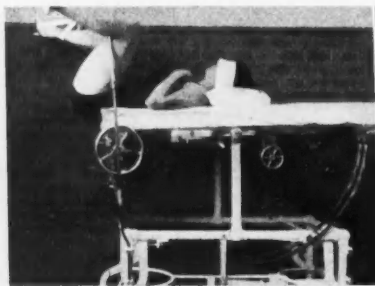


Fig. 17.—Lithotomy position, with body too far over end of table.

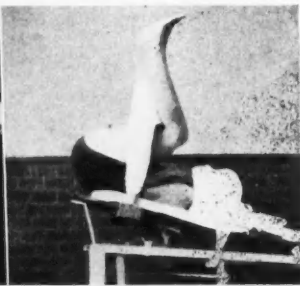


Fig. 18.—Perineal prostatectomy position.

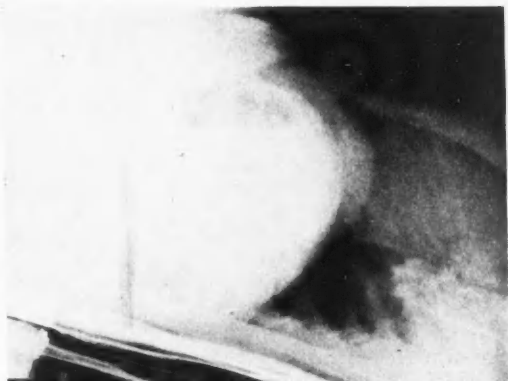


Fig. 19.—Roentgenogram, showing crowding of heart and lungs in extreme lithotomy position.

Mastoid Operations.—In preparing for the mastoid operation it is advisable to anesthetize the patient in a comfortable dorsal position with the abdominal stretch relieved by a bolster under the knees. After the patient is asleep, the head is adjusted on an oval ring sand pillow. The posterior half of the pillow is higher than the anterior half on which the face rests. A small sand pillow placed under the neck further aids in securing good exposure of the mastoid region. The head is turned well to the side, the chin to the chest, and by pulling the arms down the shoulders are less in the way. The guard¹⁰ shown is adjustable to any height and may slip under the mattress or under the sand bags. Being a frame over which the draping sheet rests, additional light is admitted. It is out of the way and may even be used by the assistants as an arm rest. It gives adequate exposure to enable the anesthetist to watch the face (Figs. 20 and 21).

Posture in Tonsillectomy Operations.—Pictures of various positions used in tonsillectomy appear in an article by Doctor Hara¹⁷ in the September 1930 CALIFORNIA AND WESTERN MEDICINE. He reports from his bronchoscopic studies of one hundred and ten patients to determine the comparative merits of posture on aspiration that the Rose position, with the head in a much lower plane than the body, gave the greatest protection. He states that next in order are the Trendelenburg, the extreme extension, and the moderate extension. The erect posture gave the largest amount of aspiration. The dangers of aspiration may be considerably reduced with a proper combination of these methods which aims to keep the blood and secretions in the nasopharynx where they can easily be suctioned or sponged away. Naturally, less postoperative nausea and vomiting occur since there is practically no blood in the stomach. The possibility of lung complications after nose and throat operations is minimized.

DANGERS OF CHANGES OF POSTURE

There are certain dangers in change of posture in anesthetized

patients because of the impairment of normal vasomotor control. When an operative position which is not comfortable for the conscious patient is required, anesthesia should be induced in a position which is comfortable. If the patient's position is altered during induction,⁵ mucus or saliva may irritate the throat and the swallowing reflex be excited. Coughing, attempts to vomit, holding of the breath may soon follow. A dangerous degree of cyanosis and other asphyxial phenomena may soon appear. These unnecessary complications may be avoided if full anesthesia is obtained before any change is effected and if the breathing is watched carefully during the change. Respiratory embarrassment is more likely to occur in plethoric individuals and in those who have short, fat necks, and may be seen in them when the posture is changed, even though the anesthesia is full.

Hewitt⁶ states that a change of posture made toward the finish of the anesthesia "rarely causes respiratory embarrassment of any importance." This fact makes postural drainage possible when it is necessary, especially when the anesthesia is light, as following nose and throat operations.

A rapid fall in blood pressure in abdominal operations¹⁸ may be caused by turning the patient on his side, especially if the anesthesia has been prolonged. This fact was noted during the World War and is recorded in the American reprint of the "Official British Manual of Injuries and Diseases of War." A patient may be in good condition at the close of an abdominal operation, but a drop of blood pressure and weak pulse soon follow if another operation is attempted with the patient on his side. This lost resistance is only slowly regained. The advice given to war surgeons is that "if possible, wounds of the back should be dealt with before laparotomy, as turning the patient has no ill effect during the first half-hour of an ether anesthesia."

When it is necessary to change the position to apply a bandage or plaster dressing following an operation, light anesthesia is advisable before the trunk is elevated.

Extreme gentleness is required in making any change of posture in patients who are in some degree of shock. Raising a patient from the dorsal to the Fowler position or from the Trendelenburg to the horizontal position may have added danger unless a sufficient degree of vasomotor control, absent during anesthesia, is recovered.

Doctor Miller⁹ believes that the routine use of the reverse Trendelenburg or Fowler position, following certain types of operation, is unsafe unless the patient's condition has first been proved satisfactory by blood pressure readings.

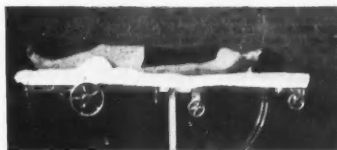


Fig. 20.—Mastoid position.

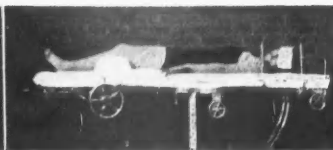


Fig. 21.—Mastoid position, showing adjustable guard.

A stretcher, hinged at the head end and provided with a worm gear to obtain any desired foot elevation, for safe transference of patients having spinal anesthesia is described by Doctor Furniss¹⁹ in the *Americal Journal of Surgery*. It is also valuable to provide proper drainage following nose and throat operations, in cases of shock, or used in the reverse position for pelvic drainage.

CONCLUSIONS

The patient's comfort is secured by attention to the details of improved posture before anesthesia is induced, by maintenance of a safe posture during the operation and by continuing the protection of the comfort and safety in his return to bed. The increased relaxation, the possibility of lighter anesthesia, the better postoperative condition and lessened discomfort are assets of the surgeon and anesthetist.

1955 Broadway.

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PATHOLOGIC DEPARTMENTS OF SMALL HOSPITALS*

By ZERA E. BOLIN, M. D.
San Francisco

LABORATORY examinations started in the hospital about 1890, when the routine examination of the urine was attempted. The only other examination that was made was an occasional estimation of the hemoglobin content of the blood. The scope of this work should be contrasted with the demand made upon the laboratory by the clinician today. The hospital laboratory must comply with the demand for biochemistry, clinical bacteriology, serology, clinical chemistry, functional tests, morbid anatomy, surgical pathology, basal metabolism, and clinical microscopy. If it is to be worthy of the hospital, the laboratory must conduct teaching courses and research.

The physicians who have graduated in the last ten years lean heavily upon the laboratory for diagnoses. Older men say that the art of clinical diagnosis will soon be lost. The reaction against this teaching has been felt in all the medical schools already and the students of medicine today no longer place blind confidence in laboratory determinations but compare them with clinical evidence.

The demand for laboratory work brought into being a horde of laboratories: some good, some bad, some indifferent, and some unspeakable. At the same time there arose a class of physicians who specialized in laboratory medicine.

In 1926, about thirty-five years after laboratory work started, fourteen hundred and three laboratories were sent questionnaires by the American Medical Association. The hospital laboratories, numbering about four thousand, were omitted from the list. One thousand and eighty replied. Of these, only one hundred and sixty were able to meet the rather low standards set by the association at this time and gain admission to its approved list.

LABORATORY STANDARDS

The standards of the American Medical Association require that the director shall be a physician, graduated from an acceptable school of medicine, who has specialized in laboratory medicine for three years. The standard also includes the licensing of the physician in the state when diagnoses are made by the laboratory director. Only a minimum of equipment is necessary for approval.

The laboratory standard of the American College of Surgeons simply states the minimum requirement, which is that the laboratory be "under competent supervision." This has been interpreted as being "best done through the medium of a clinical pathologist."

California, through the efforts of Doctor Kellogg and the State Board of Health, has offered voluntary inspection and certification of labora-

* Chairman's address, Pathology and Bacteriology Section of the California Medical Association at the sixty-first annual session, Pasadena, May 2-5, 1932.

ories, and certification is based upon the ability of the laboratory to do public health examinations.

These statements give a clue to the minimum requirements for the hospital laboratory. The personnel should consist of a director who is a physician trained in laboratory medicine, and such technicians as may be necessary. The equipment should be adequate.

THE DIRECTOR

The objection will at once be raised that the number of physicians practicing laboratory medicine is insufficient to fill all the hospital laboratories. As there are in the United States about one thousand hospitals of one hundred beds or more, and only about seven hundred pathologists, this objection is probably competent. The reason is further plainly indicated under the section on financing the laboratory. In 1924 nine hundred hospitals were investigated and only 80 per cent were supervised by pathologists, and of this 80 per cent only one-half gave full time to the laboratory.

TRAINING OF DIRECTORS

The director of the department of pathology should be a graduate physician. He should have had an adequate intern training with sufficient clinical experience to enable him to be sympathetic with the problems of the clinician. He should have had training in laboratory procedures and their application so that he is able to judge the value of any certain procedure and evaluate the tests in terms of the patient.

Lastly, and here is where the emphasis should lie, the director should have an adequate training in morbid anatomy, necropsy technique, and gross and microscopic pathology. The keystone of the pathologist's usefulness to the hospital is his knowledge of pathology and morbid anatomy. A study of this phase of the subject by Kenneth Lynch of Texas has shown that this knowledge can be obtained only by study in a large laboratory for a minimum of three years. It has been estimated that the knowledge gained in three years will be sufficient to enable him to deal successfully with about 90 per cent of the pathologic material coming to the laboratory. The remaining 10 per cent, consisting of the rare or little known lesions, will require at least a further study of five to ten years. This statement of course implies a constant flow of material. The minimum would be the performance of two to three hundred necropsies and the examination and interpretation of about three thousand surgical specimens. And further, the consensus of opinion is that such knowledge cannot be self-gained but must be acquired through work in a laboratory under adequate, skillful supervision. Great stress is laid upon this training because of the dire results that follow the misinterpretation of histologic lesions. Breasts have been sacrificed, limbs have been amputated, and much unnecessary radiotherapy given because of mistaken interpretations based on a small fragment of tissues and made by a man inexperienced in histologic diagnosis. It is anticipated that these mistakes may become more numerous as the campaigns of the organizations

fighting cancer will bring patients to surgeons earlier, and with such early lesions a wider knowledge of histopathology is necessary for correct interpretation.

DUTIES OF THE DIRECTOR

The director is not a technician. He must be familiar with the tests and have performed a sufficient number to teach the technique and point out the pitfalls. But he cannot be expected to do technical work except along certain lines. These are necropsies, tissue diagnoses, and tests calling for knowledge and skill over and above mere technical skill.

The director is a consultant. He is the head of a department which ranks equal to the departments of medicine and surgery. Every organization concerned with the problem of laboratory work, which includes the American Medical Association, the American College of Surgeons, the American Society of Pathologists and Bacteriologists, and the American Society of Clinical Pathologists, insists that the proper status of the head of the department of pathology be that of a department head and consultant. He is a member of the staff of the hospital and a valuable member of the medical board of the hospital. Access to patients should be his right as a matter of course. The director supervises the work of the technicians who do the work in blood chemistry, bacteriology, hematology, parasitology, serology, basal metabolic rate determinations, and so forth. The records and the diagnosis files must be supervised by him.

The director should attend all staff meetings and should hold the regular clinic-pathologic conferences, which should preferably be separated from the staff business meetings. The scientific spirit should be inculcated by him in all the personnel. Appropriate research problems should be suggested by him and all possible aid given to the workers, especially as regards work space, supplies, consultation and encouragement. New laboratory procedures and new methods of interpretation should be brought to the attention of the clinicians by the director.

The director must have proper control over the budget of his department and absolute control over its personnel. He must coördinate his department to the general policy of his hospital and show the utmost tact, diplomacy, and consideration in his dealing with physicians, nurses, and executives. The director should, if possible, associate himself with a teaching institution.

FINANCING DEPARTMENT

The chief cause of the lack of an adequate number of pathologists is the relatively poor remuneration received by them. Unless a graduate has a certain predilection for the work, it is useless to ask him to spend five to eight years in preparation for his life work and tell him that his ultimate income will be about \$6000 a year. He naturally compares this income with that of his friends in internal medicine, surgery, or one of the other special branches. He then sees that with the same or less training and time spent, he can probably make much more than this sum in

one of these branches. These facts have made it almost impossible to keep good men in pathology. They may start training, but soon abandon it when the urge for things that money can buy comes upon them.

The financing of the department from the standpoint of the hospital authorities has not been settled to anyone's satisfaction. The scheme of a flat rate per patient loads the laboratory with a large amount of seemingly unnecessary work. The individual charge system puts a burden on the patient's pocketbook that may be unbearable.

The department of pathology should be self-supporting, paying the director, the technicians, the supply bill, the light, heat, and rent for occupied space. Probably the fairest way is to make a total of all expenses and pro rate the sum and add it to the patient's daily rate. The director should not allow the profits gained by his department to be used to pay the debts of another department. The profit should be used as a research fund.

Routine examinations can be briefly alluded to at this point. It is an axiom that a urinalysis, a blood count and probably a Wassermann test should be done on every patient as a routine measure. But further demands may be made. The pediatric department will probably insist upon a throat culture and a vaginal smear. The surgeon will insist on a blood coagulation time done upon patients having tonsils and adenoids removed. The American College of Surgeons compels the examination of all tissues removed at operation and the filing of a histologic report with the patient's chart. The surgeons will probably wish cultures and smears made of all exudates in their patients.

A flat fee may be charged the patient which will cover the expense of these routine examinations. Beyond this, special and extra examinations may be charged at the prevailing rates. Proper provision should be made for laboratory work on patients requiring repeated examinations. The remunerations of the pathologist should be adequate for a man of his training and ability. It should be based upon the income of the physicians of his standing and ability who are working in the community outside of the hospital. He should be allowed to do as much work for the doctors who use the hospital as time will permit. Frank competition with pathologists having private laboratories should be avoided.

It is strongly urged that no attempt be made to use the department of pathology to reimburse the hospital for a deficit incurred in another department. This is not conducive to good feeling or to a tranquil mind, which must be a part of the surroundings of the department head.

The only ethical way to pay the pathologist, in view of the fact that a physician cannot ethically practice medicine for a corporation, would be the subtraction of all expenses from the gross income and turning the net income over to the pathologist. This would give him an incentive for increasing the income and keeping down all necessary expenses. The fees could be adjusted so that a reasonable sum would come in.

Small hospitals may object to this plan as being too expensive. But it is perfectly feasible to have several hospitals unite and employ competent pathologists to supervise all the laboratories and have office hours at each hospital for consultation. In these days of rapid transit and communication it is not even necessary that the hospitals be in the same small town. A distance of fifty miles is not as great today as two miles was in the days of the horse and carriage. If the pathologists were given a small budget at each hospital and were allowed to do outside work for the doctors in the community and were employed as health laboratory officers, the remuneration should be fairly adequate. Small units of this kind could be used by the few universities who are endeavoring to turn out competent pathologists as a training and placement unit in their training scheme. Small communities may by this plan have the services of a competent pathologist at a cost well within their financial ability.

TECHNICIANS

Technicians are as necessary to the pathologists as an operating-room nurse is to the surgeon. They do not make interpretations but do certain technical procedures which are used in interpreting the clinical signs and symptoms.

A school for technicians should be established in each department of pathology. It is a wonderful aid to the pathologist in keeping up to date to associate himself with keen young minds who are forever inquiring into the "why" of things.

The students of this technical course should attend no less than eighteen months or two years. They should rotate through the various departments for their practical work and should receive didactic and personal instruction from the pathologist and senior technicians. A standard course of study is being prepared by the American Society of Clinical Pathologists.

The technicians should be well chosen and competent. They should know their place and not attempt to make diagnoses. They should register with the American Society of Clinical Pathologists and obtain certificates which testify to their qualifications. The California Board of Health also issues certificates upon examination.

SUMMARY

A small hospital, if it will, may have an adequate pathologic department. The qualifications of a properly trained pathologist are outlined and emphasis is laid on the necessity for training in morbid gross and microscopic anatomy. The duties of the hospital pathologist are given. He should be the incarnation of the spirit of scientific medicine and should keep alive the spirit of research in the hospital. The proper financing of the department of pathology is discussed. The need of a school for technicians is briefly set forth. Lastly a plan is suggested whereby several small hospitals in a community may band together and obtain the services of a competent pathologist at a cost which would not be a burden on any one hospital.

450 Sutter Street.

THE KAHN PRECIPITATION TEST*

COMPARED WITH THE KOLMER MODIFICATION OF
THE WASSERMANN TEST IN UNTREATED
PRIMARY DARKFIELD POSITIVE
SERONEGATIVE SYPHILIS

By STANLEY O. CHAMBERS, M. D.
Los Angeles

DISCUSSION by Newton Evans, M. D., Los Angeles;
W. T. Cummins, M. D., San Francisco; H. A. Wyckoff,
M. D., San Francisco.

A TECHNICAL performance, regardless of its application, must of necessity depend for its interpretation in part upon a variable personal equation. The following statistical data is presented with this factor firmly in mind and in no way are the results interpreted as conclusive or final. Rather a repetition of this investigation is strongly urged that comparative figures may be offered to corroborate what appears to be an important serologic variation.

EARLY DIAGNOSIS IMPORTANT

We have come to appreciate that the early diagnosis and early treatment of syphilis are of paramount importance and that a matter of days or hours may affect the ultimate possibility of clinical and serologic cure in definite percentage figures. This fact was emphasized recently by Chargin and Stone,¹ who quoted 90 per cent of clinical and serological cures for seronegative primary syphilis and 61 per cent for the seropositive group. A difference of about 30 per cent. If the difference between 90 and 61 per cent can represent failure in the cure of the disease through inability to arrive at an early diagnosis, surely then any effort to further simplify or interpret methods should indeed be acceptable.

Two of the most widely accepted serologic methods for the interpretation of the disease are the Kolmer modification of the Wassermann test and the Kahn precipitation test. This communication deals with a comparison of these two tests in primary darkfield positive seronegative syphilis. The increasing dependence placed upon this latter test prompted the investigation. If the previous figures are correct the constant tendency of one test to lag behind the other would obviously affect

* From the Los Angeles County General Hospital.

¹Read before the Pathology and Bacteriology Section of the California Medical Association at the sixtieth annual session, San Francisco, April 27-30, 1931.

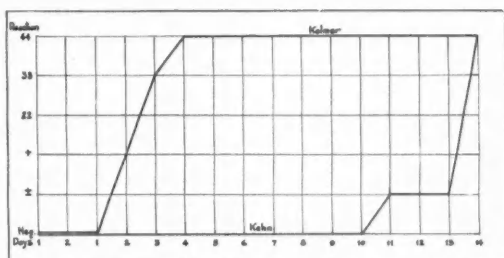


Fig. 2.—Comparison showing the longest time relation.

early diagnosis and in turn lower curative opportunities.

HOW CLINICAL MATERIAL WAS SEGREGATED

Patients presenting primary lesions of syphilis were isolated following darkfield identification of the disease on two or more examinations. Blood samples were drawn daily, divided into six tubes, two tubes sent to each of three laboratories. All specimens were tested in our own laboratory, whereas specimens to the check laboratories were divided. This offered a variety of techniques which allowed for a more accurate interpretation of results.

The daily sera of twenty-five patients with primary darkfield positive seronegative syphilis were examined by the two methods and compared.

INTERPRETATION OF ILLUSTRATIONS

Figure 1 represents an average comparison of the twenty-five cases. The Kolmer preceded the Kahn in the first evidence of positivity by five days. The reaction here ranged from zero to 25 per cent inhibition or precipitation. The diagnostic value of such reactions is obviously not dependable, further serologic evidence of syphilis usually being required before the presence of the disease can be assumed. The Kolmer, however, preceded the Kahn at the level of 50 per cent inhibition and precipitation by five days and for total inhibition and precipitation by six days.

Figure 2 shows a single case which evidenced the greatest time intervals between positive reactions. Here the Kolmer preceded the Kahn in 1 to 25 per cent inhibition and precipitation by ten days, 50 per cent inhibition and precipitation by fourteen days, and total inhibition and precipitation by thirteen days.

Figure 3 represents an isolated example of the shortest time interval between positive reactions.

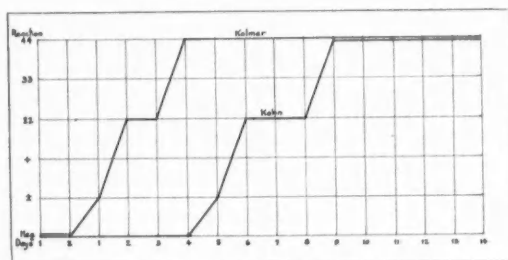


Fig. 1.—Average comparison.

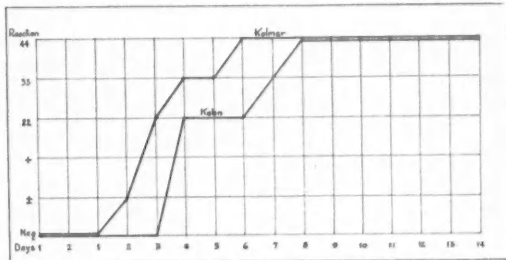


Fig. 3.—Comparison showing the shortest time relation.

Here the Kolmer preceded the Kahn in 1 to 25 per cent inhibition and precipitation by two days, 50 per cent by one day, and total precipitation and inhibition by three days.

COMMENTS

There appeared to be a consistent relation between the two tests and the duration of infection. Those patients having a duration of infection of three weeks evidenced the least variation, while those with infections of eight weeks' duration showed the greatest variation (Figure 4). The duration of infection up to the first evidence of serologic positivity ranged from eighteen to fifty-seven days, with an average of forty-one days.

Secondary cutaneous manifestations developed in 60 per cent of the cases. It is interesting to note that in 88 per cent of this group the secondary lesions appeared almost simultaneously with the strongly positive Kahn. The remaining 12 per cent of cases developed secondary cutaneous lesions two to four days after the appearance of the strongly positive Kahn.

The obvious question in such a serologic investigation centers about the sensitivity of the two tests. It is highly possible to have a hypersensitive Kolmer and a less sensitive Kahn, which combination could easily result in the data just presented.[†] One of the two laboratories checking the sera agreed in the Kolmer, but evidenced a less sensitive Kahn. The third laboratory evidenced both a less sensitive Kolmer and a less sensitive Kahn. Positivity appeared in both tests four to five days later than our own. In both checks the Kahn test was less sensitive than our own, the Kolmer equal in one and less sensitive in the other.

That either the Kolmer or Kahn tests were oversensitive would appear improbable, for periods of absolute negativity preceded all of the studied cases by three to eighteen days and in no instance were humps (positive, then back to negative) noted prior to the ascending and consistent positivity. The tests appeared progressively positive from day to day.

Approximately one hundred and fifty blood samples are tested from the department of dermatology and syphilology each month. All patients, referred to the department in the event of a positive blood Wassermann reaction identified by routine serologic tests in the hospital, were in every instance corroborated by repeated positive serology, clinical evidence, and previous histories of infection with subsequent treatment for syphilis.

The comparison of the Kolmer and Kahn tests on all blood samples so tested in the hospital was reported by Evans in 1929. He recorded complete agreement in 96.71 per cent, relative agreement in 1.18 per cent, and complete disagreement in 2.1 per cent. A similar comparison in the same laboratory from 1929 to the present shows complete agreement in 96.25 per cent, relative agreement in 2.25 per cent, and disagreement in 1.5 per

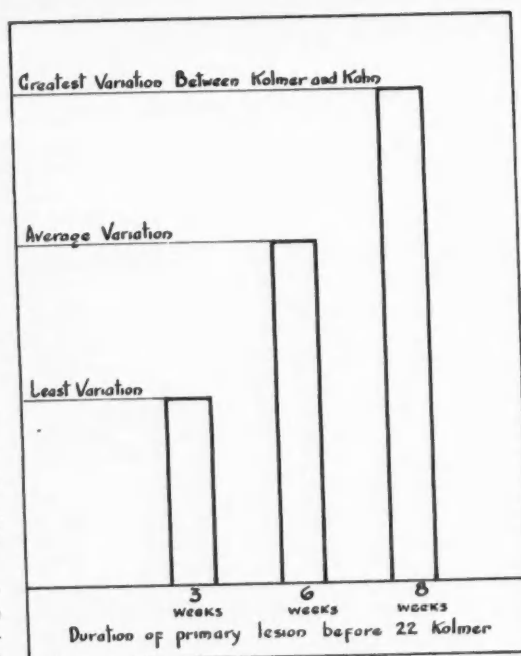


Fig. 4.—Showing relation between the variation of tests and the duration of infection.

cent. These figures agree quite accurately with most previous authors and help to establish our serological procedures as probably accurate. The high percentage of agreement is indeed favorable in further establishing the accuracy of our present comparative figures.

A third and most important factor in the explanation of possible variation is the Kahn antigen. During the investigation three different manufactured antigens were tested. A marked difference in sensitivity was apparent although all were supposedly standardized. Two of the antigens were sufficiently unsatisfactory to warrant their discontinuance, since evidence of such variation was apparent.

The presumptive Kahn test, using a more sensitive Kahn antigen, was used in but two cases. The comparative results, however, were the same, suggesting a fixed point in the appearance of the positive reaction regardless of antigen sensitivity.

CONCLUSIONS

To determine that serologic test which was able to identify a syphilitic infection in its earliest stage seemed of sufficient importance to warrant the investigation contained herein. The results are obviously not conclusive and do not permit the inference of advantage or advisability of one test over the other. It would indeed be helpful if at intervals such material could be utilized to act as a check on the serologic procedures of all laboratories.

In view of the many sources of error, it is to be hoped that this material will not act to unjustly affect a test which has proved one of the greatest aids to modern medicine.

1260 Roosevelt Building.

[†] The tests were done by Mrs. Chestnut, in charge of the serologic laboratory of the Los Angeles County General Hospital.

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1. Chargin, L., and Stone, A.: *Arch. Dermat. and Syph.*, 19:750 (May), 1929.

DISCUSSION

NEWTON EVANS, M. D. (White Memorial Hospital, Los Angeles).—Doctor Chambers' communication presents a significant clinical experimental observation. It has a practical bearing on the treatment of syphilis. To know that the Kolmer test will enable the physician to recognize serologically the presence of a primary infection on an average of four days earlier than it can be detected by the Kahn test, is of definite importance in the institution of treatment.

To the student of serology, it opens the way for speculation on the nature of the specific antibodies concerned in the serologic tests for syphilis. In the laboratory of the Los Angeles County General Hospital, observations on approximately ninety thousand parallel Wassermann and Kahn tests have made it clear that there is no close parallelism between the two tests. While there is complete agreement within the limits of the ordinary reading in 96 per cent of specimens, there is a limited group of cases in which there is a constant complete disagreement. Some sera are Kahn-positive four plus with negative Wassermann, and others give exactly opposite reactions. This discrepancy is not due to mistakes in the technique or reading, but is a constant difference proved by many repetitions. This observation is in harmony with numerous large series of observations in other laboratories.

One cannot escape the conclusion that there must be an essential difference in the character of the substance or substances in the serum responsible for the reaction with the antigen in the two tests. Doctor Chambers' observation of the constant difference in date of appearance of positivity of the two tests is strong confirmation of this viewpoint.

On the contrary, men who have made an extensive study of these serologic tests hold a different opinion. Doctor Kolmer has stated: "I have conducted considerable investigation and the results have convinced me that precipitin and complement fixation antibodies are either identical or so closely associated in the phenomenon of complement fixation as to demand the presence of both for the reaction. I believe they are identical or very closely related." But he admits that conclusive evidence of their unity has not been produced. Doctor Kahn expresses a similar opinion and quotes Dean to the effect that precipitin (of the Kahn test) and amboceptor (of the Wassermann test) are the same substance.

Assuming the validity of Doctor Chambers' observation, one must conclude that in the two tests either the nature of the reacting substance or substances in a given syphilitic serum must be in some way different or that the Wassermann (Kolmer modification) test is a more sensitive indicator of the presence of the reacting substance. This latter alternative conclusion appears absurd in view of the thousands of dependable tests on syphilitic serum in which the Kahn is four plus positive and the Wassermann completely negative.

✱

W. T. CUMMINS, M. D. (Southern Pacific General Hospital, San Francisco).—There is an increasingly large number of laboratories that are employing the Kahn technique, either alone or with the Wassermann technique. A comparison of the two tests in the routine examination of many cases has revealed numerous, unexplainably wide differences in results. It has been said that the Kahn test is the more sensitive, especially in eliciting positive reactions during syphilitic treatment.

The author has chosen for his study a very important and practical phase of the subject. The earliest possible diagnosis of syphilis after the appearance of the primary lesion is that which we wish to attain. Negative darkfield results are sometimes followed by positive serologic findings.

With the Kolmer-Wassermann positiveness preceding that of the Kahn by four days, as determined by the author, one might interpret, indeed, such findings by the assumption that the Kahn antigen or antigens were undersensitive. Be that as it may, his results suggest that the complement fixation and the precipitin reactions for syphilis do not elicit the same so-called antibody.

The author has presented a very pertinent contribution and we trust that he may continue the work and that others may be interested, so that an extended investigation will be made in order to facilitate the earliest possible diagnosis of syphilis and, perhaps, to establish the identity or lack of identity of the reacting substances in syphilitic serum.

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H. A. WYCKOFF, M. D. (Stanford-Lane Hospital, San Francisco).—The objective of Doctor Chambers' investigation has most important bearings. The value of his contribution, real as it already is, will be enhanced by further work on his part, and by repetition of his experiments by others. Such substantiation is, of course, indispensable.

The expression of an opinion as to the validity of his findings should probably not be attempted by any but those who have already performed similar investigations or parallel experiments. For this reason it seems probable that the valuation and interpretation made by Doctor Chambers himself deserves most attention.

He has perhaps been somewhat too modest in his estimation of the value of his observations as they at present stand. It must be realized that the ultimate test of the worth of a method to the medical profession must be the result obtained when carefully performed by trained workers under everyday conditions and not in some environment specially created.

Doctor Chambers' clear and concise description of his methods and findings seems to indicate that his investigation has been made with dependable reagents and with adequate control. His results and conclusions have a right to consideration by those qualified to judge.

PARTIAL GASTRIC RESECTION*

By E. ERIC LARSON, M. D.
Los Angeles

DISCUSSION by Clarence G. Toland, M.D., Los Angeles; Charles T. Sturgeon, M.D., Los Angeles; John C. Ruddock, M.D., Los Angeles.

GASTRIC resection was first successfully accomplished by Theodore Billroth in 1881.¹ A few months later the first gastro-enterostomy was done by Wöfler.² Since that time, so thoroughly have the technical barriers been overcome and so well understood are the major indications for gastric surgery that there is now no hesitancy in resorting to surgical procedure. However, there is a striking difference of opinion among our best physicians as to the type of operation to be performed. During the past decade noted European surgeons have constantly recommended partial resection for most gastric lesions, as well as for duodenal ulcers, reporting that the result of this type of operation is much better than that following gastro-enterostomy. This influence has extended to America, where many surgeons cor-

* Read before the General Surgery Section of the California Medical Association at the sixtieth annual session at San Francisco, April 27-30, 1931.

roborate statistics of their European confrères. It is the purpose of this paper to emphasize some of the indications for, and the management of, partial gastric resection.

INCIDENCE

Peptic ulcer, with its complications, continues to be a major problem in gastroduodenal pathology. The etiology remains unknown in the face of earnest investigation by research workers, by physicians and surgeons actively engaged in its treatment, by pathologists, and also from statistical studies made available by medical institutions and insurance companies.

Bevan³ states that 10 to 12 per cent of our population have peptic ulcer, and that 90 per cent of gastric ulcers occur in the "magenstrasse" (Waldeyer). Robertson and Hargis⁴ have demonstrated that there are benign lesions in 19 per cent of necropsies, with 65 per cent in the duodenum and 35 per cent in the stomach. From this we infer that ulcers may develop, then heal, leaving no trace. However we feel about our increasing knowledge of physiology, biochemistry, and the information regarding peptic ulcer, the statistical fact, constantly emphasized and widely practiced, is that approximately three-fourths of all peptic ulcers can be healed by an adequate medical regime and the remainder should be treated by surgery.

Statistics and opinions as to the relationship between gastric ulcer and malignancy vary greatly. Crile⁵ is of the opinion that less than five per cent of gastric ulcers become malignant; Lahey⁶ states that his estimate is less than 10 per cent. Many surgeons regard most gastric ulcers as surgical when no contra-indications exist. The differential diagnosis between gastric ulcer and early carcinoma is so difficult that an exploration, with the assistance of a pathologist, is often necessary. Gastric cancer has a short history, while it is not unusual to obtain a long ulcer history previous to gastric malignancy, suggesting two facts: that ulcer is not a commonly precancerous condition, and that the medical treatment of ulcer is a failure in many instances. It happens occasionally that the medical profession is spared an embarrassing situation when a huge lesion diagnosed as an inoperative gastric malignancy is denied an exploration for verification, and a cultist leaps the barrier with a satisfied patient.

DIAGNOSIS

The mimicry of ulcer by other pathological conditions, the distorted physiology of malfunctioning organs, and the fact that intrinsic lesions constitute only a small percentage of the causes of dyspepsia, demand a thorough clinical study of the patient. Painstaking diagnostic procedures will include a carefully detailed history and thorough physical examination, combined with laboratory data, including gastric analysis and roentgenologic study.

Gastric retention and blood chemistry studies may indicate a serious degree of alkalosis, with impending tetany. Anacidity may postulate an



Fig. 1.—Crushed tissue removed from duodenal stump and suture line buried. Portion of stomach to be removed is isolated and ready for removal.

inactive healed ulcer, malignancy, pernicious anemia, or asthenic-neurotic state with a hypotonic stomach, requiring careful analysis as to a more definite etiology.

The data will demonstrate whether the ulcer is gastric or duodenal, simple or complicated. Shallow saddle ulcers at the lesser curvature, where the only finding is a diminished peristalsis, may be an exception to this rule, since they frequently escape detection, even in the hands of our best roentgenologists. Thus a careful marshaling of all the facts in regard to the clinical development, size, position, and complications induced by cicatrization, hemorrhage, perforation, or degeneration, with a detailed study of the well-being of the patient, should influence the type of treatment to be instituted. If an incomplete attack is necessitated we must expect an incomplete result.

METHODS OF MANAGEMENT

For years there has been advocated a reform in the surgical and medical rivalry now existing in the management of peptic ulcer. Better non-operative methods of ulcer treatment are being constantly evolved since Sippy⁷ first published his regimen. Excepting patients with obstruction, massive hemorrhage, acute perforation, or malignant degeneration, all peptic ulcers should first be given the advantage of a thorough medical regimen. Even if dietary measures fail, the patient will have been trained in the dietetic restrictions which must follow the operation. Medical management will greatly reduce the inflamed, callous, adherent ulcer mass, and if surgical treatment is instituted the procedure will have been simplified.

Relief of chronic lesions by surgical means must be applied when medical measures fail to give relief to symptoms, to protect against the recurrence of ulcers or such complications as unrelieved pyloric obstruction, or if, in gastric ulcer, there is frank degeneration or suspicion of it. The basic principles in surgical treatment are identical with those postulated in a successful medical regimen, viz., the relief of acidity and the control of muscular spasm, combined with gastro-intestinal continuity, facilitating drainage. Gastrojejunostomy accomplishes this, especially if the anastomosis is well placed and obstruction avoided. Pyloroplasty in selected patients, with excision of the ulcer, combined with careful examination of the open duodenum for unsuspected multiple ulcerations and their eradication, will give a large percentage of excellent results. The election of each type of pyloroplasty (viz., Heineke-Mikulicz, Judd, Finney, Horsley) must be left to the surgeon at the open abdomen, where he may employ vision and palpation. Partial gastric resection may be the operation of choice, especially in those patients who have had previous unsuccessful gastric operations, and in those where radical removal of the pathologic tissues, as well as the acid-bearing portion of the stomach, is advisable.

Various types of partial gastric resection necessitate a broad training and experience, with balanced judgment, to determine authoritatively the conditions which can be reasonably selected for conservative methods and those which should be treated by thorough surgical efforts. Judgment in this type of surgery is knowing whether to take great and seemingly unwarranted risks or to

withdraw in the face of unexpected difficulties; whether temporarily to abandon the procedure short of completion when confronted by a formidable lesion and finish the operation at a second stage or to risk operative fatality. In this connection it seems well to emphasize that a temporary type of procedure is indicated in those patients who have such dangerous complications as colic fistulae occurring with marginal ulcers, or old perforations with a posterior communicating cavity before the partial gastric resection is done. When standardization of partial gastric resection is avoided the results will be better.

Although most of us do not agree with those physicians who are at present eulogizing partial gastric resection as the treatment of choice for duodenal ulcers, it is admitted that there may be a place for this type of operation in large bleeding and eroding posterior wall duodenal ulcers, or in patients who have several large ulcers throughout the first and second portions of the duodenum. Otherwise it does not seem correct to remove a large portion of a healthy stomach for duodenal ulcers which can be handled by a more simple initial operative procedure. Marginal ulcers recurring after gastro-enterostomy and pyloroplasty or malfunctioning anastomoses, and gastric ulcers resistant to adequate medical management, and, of course, new growths which offer a chance of complete removal, seem best treated by partial gastric resection.

Partial resections of the direct type, such as the Billroth No. 1,¹ can be used with advantage where the mobilization of the stomach and duodenum is possible and if the technique of avoiding its dangers is well known and observed. An increasing amount of statistics is constantly becoming available from large institutions, indicating that this type of operation which was formerly so hazardous is giving good results with no increase in operative mortality. Circular excision seems to have minimal indications except for the hour-glass stomach.

The indirect type of resection, based on the Billroth No. 2¹ and its modifications, most notably the Polya,⁸ seems best suited in most instances for extensive gastric resection. Since it is advisable that one-half to three-fifths of the pyloric end of the stomach be removed in resections; the acid-bearing portion and the seat of the pathology can be excised with a wide margin. Ulcers involving the lesser curvature may necessitate for their removal modifications of the usual procedures. It may be advantageous to remove the whole lesser curvature and resuture the cut edges as devised by Schoemaker,⁹ before the anastomosis is made, whether by the direct or indirect methods of partial gastric resection. It is important that the surgeon exercise caution and make an anticollic type of Polya, with an entero-anastomosis wherever it seems likely that the stump will be too short to bring down through the mesocolon and thereby form an obstruction.

I shall briefly describe the technique of indirect partial gastrectomy after the method of Polya,⁸ which I feel has certain advantages and gives

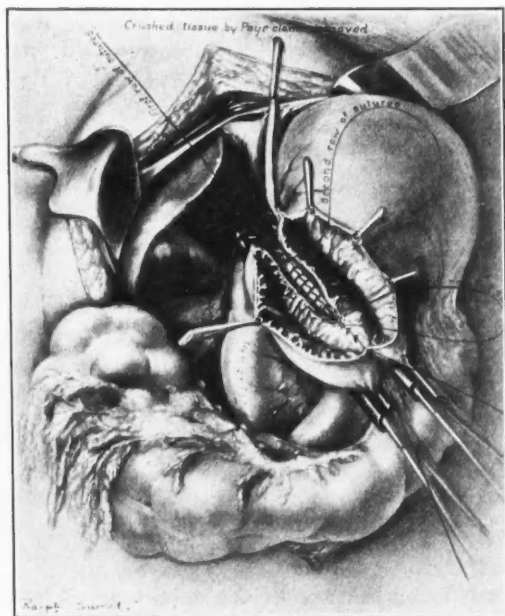


Fig. 2.—Posterior polya. Jejunum brought up through a rent in mesocolon and sutured. Second row nearly completed and mucosal suture started.

excellent results. The pyloric and gastro-epiploic vessels are ligated. The Payr clamp is then applied, the tissues crushed, the pylorus divided, and the duodenum securely closed by one of several methods. According to the preference of the surgeon, the duodenal end can be either inverted or buried. The latter method is more simple, gives a safe closure and prevents duodenal fistula, which is a severe and dangerous complication. The closure is then reinforced by tags of omentum. If a lesion exists in the duodenum it may be disregarded and the stump of the duodenum closed. The pyloric end of the stomach is then mobilized by ligation in sections of the gastro-hepatic and gastrocolic omenta. The vessels along the lesser curvature are ligated to a point one inch beyond the line at which the resection is to be made. The ligation of the gastric artery must be safe. A long rubber clamp is placed as high as possible on the stomach, which is then turned over to the left. The jejunum is brought up through an opening in the mesocolon and a segment four inches long, about five inches from Treitz' ligament, is caught in a soft rubber clamp. This is sutured, with chromic catgut or silk, to the stomach, the proximal end of the jejunum to the lesser curvature and the distal end of the jejunum to the greater curvature. A large Payr clamp is then placed across the stomach along the line where the resection takes place. Tissues are crushed to facilitate hemostasis, and most of the crushed tissue is removed with scissors. The first suture line prevents retraction of the stomach into a position where suturing would be difficult. Large vessels in the open end of the stomach are clamped and ligated to prevent hemorrhage. An opening of corresponding size is then made in the jejunum and anastomosis completed in the usual way. When the posterior suture line is complete, it is advisable to loosen the clamps and inspect for hemorrhage, which, if present, can be controlled by a transfixing suture. Tension sutures are placed at both ends of the completed suture line to counteract any undue strain. The whole anastomosis is then drawn down through the opening in the mesocolon and the edges of the latter structure are sutured to the stomach at as high a point as possible. The anterior type of resection is made in a similar manner, the jejunum being placed anteriorly to the transverse colon, and an entero-anastomosis is made. The divided gastrocolic and gastrohepatic omenta should be brought together by chromic catgut to prevent possible obstruction due either to herniation or to adhesions.

Postoperatively these patients usually do as well as those following gastro-enterostomy or pyloroplasty. It has been my practice to keep the stomach at rest until danger of hemorrhage is diminished and the edema at the suture line has subsided, approximately four days, fluids being supplied by the rectal and subcutaneous routes. If no contra-indications then exist, liquids are given by mouth in small quantities, increased gradually, after which the diet is restricted to soft, easily digested foods, and the patient in-

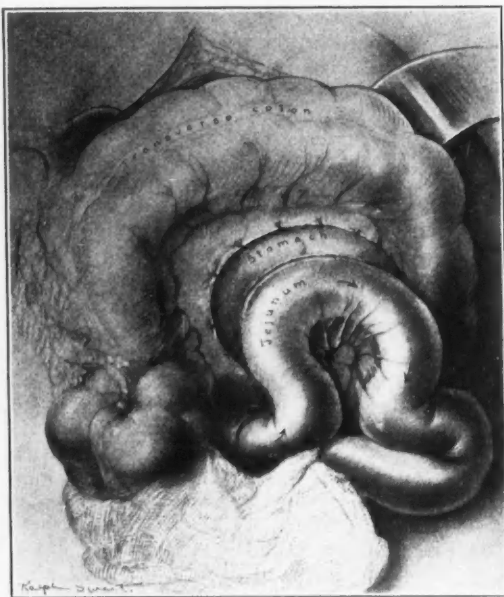


Fig. 3.—Mesocolon securely sutured to the wall of the stomach above the line of anastomosis. Jejunum retroperistaltic.

structed to adhere to a rather strict regimen with frequent daily feedings for several months. When six to ten months have elapsed the patient is given barium and is fluoroscoped to determine his progress and the necessity of further advice.

SUMMARY

1. There is a growing tendency among internists and surgeons to share the responsibility in the management of gastroduodenal lesions. Uncomplicated peptic ulcer should be given the chance of an adequate medical regimen before surgery is advised. The surgeon who does not agree that most chronic peptic ulcers should be treated by an internist, and the internist who does not recognize that a small percentage should have the opportunity offered by surgical procedures are each a detriment to the medical profession, as well as to the patient.
2. Gastric ulcers, situated in the lower half of the stomach or at the lesser curvature, which do not improve on an adequate medical regimen, localized new growths, malfunctioning or ulcerated pyloroplasties or gastro-enterostomies respond well to partial gastric resection.
3. Multiple ulcerations, or large hemorrhaging posterior wall duodenal ulcers, may warrant partial gastric resection where the risk is justified.
4. Benign duodenal ulcerations, if submitted to surgery, should first have the advantage of lesser operative procedures, such as removal with or without gastro-enterostomy or pyloroplasty. Resection can be done at a subsequent operation.
5. Circular excision has its best field of usefulness when applied to the hour-glass stomach.
6. The postoperative treatment of the patients after a partial gastric resection is not dissimilar

to that following pyloroplasty or gastro-enterostomy, except for more frequent feedings with lesser quantities for an extended period.

1930 Wilshire Boulevard.

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DISCUSSION

CLARENCE G. TOLAND, M. D. (1930 Wilshire Boulevard, Los Angeles).—Partial gastric resection is a surgical procedure that demands the most careful judgment before being chosen, but in its proper place yields very excellent results. Its indications in a few conditions are fairly positive. In most cases it is a matter for decision only with the abdomen opened and the existing pathology well in view. The location and nature of the lesion, its size, the relative risks of a conservative operation versus the more radical partial gastrectomy, are all factors carefully to be considered.

Gastric surgery is directed essentially at extirpation of the pathologic lesion and an attempt at correction of the disordered physiology. Thus partial gastrectomy is a sound operation physiologically in certain gastric and duodenal ulcers, that is, it removes the acid-forming area, corrects muscle spasm, and allows for postoperative motility. It is not justified as a primary procedure in the treatment of duodenal ulcer due to its still prohibitive mortality. In the bleeding type of duodenal ulcer, too, removal of the bleeding area is highly desirable, but too often we are confronted with a large ulcer with surrounding subacute inflammation and immobility of the first and second portions of the duodenum which renders excision or resection extremely hazardous. Of necessity, we must be content with gastro-enterostomy which, fortunately, prevents recurrence of bleeding in a majority of cases.

A definite indication for partial gastrectomy exists, I believe, in those cases with extensive gastrojejunal ulceration following gastro-enterostomy, also in those cases where the original ulcer either has not healed, or has narrowed the duodenum so that satisfactory pyloroplasty is impossible. The mortality of gastric resection will be between three and five per cent, but in chosen cases the operation is certainly justifiable.

Malignancies without metastasis should, of course, have either a partial or complete gastrectomy, even in the presence of metastasis, if such is not too extensive. If an ulcerated, necrotic, infected, gastric lesion can be removed, we believe a great deal of

suffering will be spared the patient; we know the primary gastric lesion causes far more pain than liver metastases. The same principle that applies to removal of a sloughing ulcerating breast cancer with metastases applies here.

The type of operation used is the one which suits the individual case. Occasionally a two-stage operation is indicated. All types of operations have their place, but their application depends upon the experience of the surgeon. No one type can be used in every case.

I am strongly against any surgical procedure that carries hazards when a much more simple procedure will give the same result with less operative mortality, and with fewer and less severe complications. In other words, "surgical judgment is our guide."

Doctor Larson has brought to our attention a subject that should receive careful thought and consideration by all men practicing surgery.



CHARLES T. STURGEON, M. D. (1930 Wilshire Boulevard, Los Angeles).—Doctor Larson has reviewed the subject of the surgical treatment of peptic ulcer very well and very conservatively. He wisely did not recommend routine partial gastrectomy for duodenal ulcer.

There is at present much controversy among surgeons as to whether partial gastrectomy should ever be used for duodenal ulcer. In the great majority of duodenal ulcers, especially of the uncomplicated type, there is no question but that excision of the ulcer plus a posterior gastro-enterostomy gives results which are as good, if not better, than partial gastrectomy, and the mortality is much lower.

Occasionally partial gastrectomy is indicated in duodenal ulcers, viz., in ulcers where there have been repeated massive hemorrhages; also in duodenal ulcers situated in the posterior wall and which are adherent to the pancreas. In this latter type, partial gastrectomy should be done if possible. At times it is a very difficult surgical procedure and the mortality is very high.

In gastric ulcers there are more indications for partial gastrectomy than in duodenal ulcers; many of the gastric ulcers are large and deforming and are frequently adherent to the pancreas and to the surrounding structures. Obviously in this type of case a partial resection will give more relief than a gastro-enterostomy. One must remove the pathology if one expects to cure the patient completely.

There is one type of ulcer which in our hands has given a great deal of trouble: that is, an ulcer high up on the lesser curvature, near the esophageal opening. Formerly in this type of case we contented ourselves with a resection of the ulcer and an added posterior gastro-enterostomy, but our results were not satisfactory. In the last two cases of this type we employed the method which Doctor Larson mentioned in his paper, viz., Schoemaker's modification: doing a partial gastrectomy, removing all of the lesser curvature, closing a portion of the segment, and the operation completed by means of a Polya. Our results in these two cases have been better than the results formerly obtained.

Patients who require as extensive an operation as partial gastrectomy are usually in poor physical condition and require thorough preliminary preparation. They should receive an abundance of fluids two to three days before the operation. If they are very anemic they should be given transfusions, and in cases of obstruction gastric lavage should always be done for several days before the operation. Also, as Doctor Larson mentioned in his paper, all ulcer patients on whom surgery has been done should be referred to an internist for medical and dietary supervision over a long period of time.

The technique of doing a gastrectomy today is fairly well standardized. The only debatable part

of the technique is which method is the best to use to restore the gastro-intestinal continuity. If enough of the stomach is left so that the duodenum can be sufficiently mobilized, a Billroth No. 1 type of operation is the operation of choice, as in this manner the normal physiology is restored. But in the other cases, which comprise the majority, so much of the stomach has been removed that a Billroth No. 1 cannot be used; therefore the restoration should be completed by means of either a posterior or anterior Polya.



JOHN C. RUDDOCK, M. D. (1930 Wilshire Boulevard, Los Angeles).—Doctor Larson has offered an excellent discussion of the surgical treatment of peptic ulcer, with a technical description of the "modus operandi" of partial gastrectomy. His attitude is conservatism; and this should be maintained by surgeons doing gastric surgery, because, as the author has stated, approximately 75 per cent of all peptic ulcers can be healed by an adequate medical regimen.

An adequate medical regimen means that the internist should study his case thoroughly, and that his instructions and dietary are religiously carried out by the patient.

The type of operation selected is dependent on the individual case with which we are dealing. This selection should depend upon a combined study by an internist and a surgeon, and the final judgment left to the surgeon when the pathology is seen. However, conservatism should be his rule as regards the type of operation selected.

Irrespective of the type of surgery used, the internist is eventually called upon to treat postoperatively a very large percentage of these people for various and sundry ailments.

To feel that one can reroute the gastric flow or remove the active or acid-forming portion of the stomach without altering the physiology of the organs or changing the metabolism of the individual would be wonderful, if true; but unfortunately this is not so. One must keep in mind that the gastric secretions are necessary for perfect metabolism, and often the stomach organ changes in function a resection from an active, muscular, secreting and mixing viscous organ to a mere funnel, which cannot retain its secretions and which empties its contents almost immediately into the bowel. This immediate emptying does not give the pancreatic and liver secretions the opportunity of mixing consistently with the food elements that is allowed by the slow rhythmic emptying which takes place through a normal duodenum.

It is true that these patients with partial gastrectomy obtain much relief following their surgery; but many of them end in the hands of the internist because of metabolic and physiologic disturbances. Pelagra and anemia are after-results that are not only serious but very difficult to cope with, because of the altered physiology. Other complications, such as persistent diarrhea, eructations of bile, and vague abdominal pains, usually diagnosed "adhesions," are much more common. Occasionally the internist will diagnose recurrent jejunal ulcers.

Because of the altered physiology and metabolism, these patients are never able to revert to a complete dietary; and if they would live comfortably they must restrict their dietary regimen for the rest of their lives.

Surgery is a justifiable procedure in the treatment of peptic ulcer. Partial gastrectomy in the proper hands is an excellent operation for certain conditions. Malignancy is a disease that calls for radicalism rather than conservatism. In other conditions, however, conservative measures are the measures of choice because of the mortality involved in the application of any surgical procedure and because of the altered physiology and metabolism which sometimes eventually leads to further trouble.

UPPER URINARY TRACT AND THE ADJACENT ORGANS—THE DIFFERENTIAL DIAGNOSIS OF PATHOLOGIC CONDITIONS*

REPORT OF CASES

By WILLIAM E. STEVENS, M.D.
San Francisco

DISCUSSION by Charles P. Mathé, M. D., San Francisco;
Wirt B. Dakin, M. D., Los Angeles; Louis Clive Jacobs,
M. D., San Francisco.

THE differential diagnosis of pathologic conditions of the upper urinary tract and the adjacent organs constitutes one of the most interesting studies in the field of medicine and surgery. The practice of medicine, and especially that branch of it known as urology, is rapidly approaching an exact science, and with the armamentarium and methods of precision now at our disposal there is little excuse for mistakes in the great majority of cases. In some instances, however, the usual subjective symptoms are absent and the objective findings negative or misleading. In addition to close approximation anatomically, the upper urinary tract and abdominal organs are closely associated through lymphatic and vascular anastomoses as well as through the sympathetic and cerebrospinal nerve plexuses. Variations in contour, position and size, as well as congenital anomalies and acquired abnormalities of both the urinary and intra-abdominal organs, may add to the confusion. Because of these facts pathologic conditions of the upper urinary tract may be responsible for pain and other symptoms in various parts of the abdomen. Likewise, symptoms apparently due to other intra-abdominal pathology may be present in the absence of disease of these organs. Pathologic conditions of the lungs, pleurae, adrenal glands, and the lower genito-urinary tract in both sexes are occasionally to blame for pain in the upper abdomen and should not be overlooked. The possible coexistence of lesions of both the urinary and the adjacent organs should likewise be remembered. A negative urine does not necessarily exclude cortical abscesses, carbuncles, a noninfected or closed hydro-nephrosis, a closed renal tuberculosis, or even a calculus. Pain due to all of these conditions may be localized or radiate in any direction and even be responsible for pain in the opposite kidney, the so-called renorenal reflex, or in any of the intra-abdominal organs. Obstructions of the ureters due to strictures, kinks, fibrous bands, or anomalous vessels may be present in the absence of subjective or objective symptoms other than pain. Cecil,¹ in a review of three hundred cases of urinary-tract pathology found that pain, present in one hundred and eighty-three cases, was limited to the abdomen in over 22 per cent. The fact is not generally appreciated that in at least one-third of all patients entering a hospital with uncertain diagnoses urologic investigation is indi-

*Read before the Urology Section of the California Medical Association at the sixtieth annual session, San Francisco, April 27-30, 1931.

cated. Many unnecessary operations have been performed because of incomplete examinations. The importance of an early diagnosis of such conditions as a ruptured kidney, bladder, liver, spleen, or ectopic pregnancy, a perforated gastric or duodenal ulcer, a volvulus or twisted pedicle of an ovarian cyst as well as acute appendicitis is obvious.

IMPORTANT DIAGNOSTIC PROCEDURES

It is not my intention to discuss exhaustively the various methods of diagnosis of pathologic conditions of the upper urinary tract and the adjacent organs, but to briefly mention the principal modern diagnostic procedures and to call attention to some of the conditions in which mistakes in diagnosis are common and to others in which a correct diagnosis is exceptionally difficult, if not impossible. The lower genito-urinary tract will not be considered other than to emphasize the fact that pathologic conditions of the prostate and seminal vesicles in the male, the pelvic organs in the female and the urethra in both sexes may be responsible for symptoms suggestive of upper urinary tract pathology or be the principal etiologic factor in pathologic conditions of the entire urinary tract.

PYELOURETEROGRAPHY

While pyeloureterography is of great diagnostic value in pathologic conditions of the kidney and ureter, mistakes in interpretation are not uncommon. This is less apt to occur, however, if bilateral stereoscopic pyeloureterograms are taken with the patient in the prone, supine, upright, and Trendelenburg positions following both the insertion and withdrawal of opaque ureteral catheters. The lateral position is also of occasional value. It is often impossible to make a positive diagnosis of hydronephrosis or hydroureter or of a stricture, kink or pressure on the ureter by anomalous vessels or fibrous bands if this procedure is not employed. While excellent pyeloureterograms are sometimes obtained following the intravenous injection of uroselectan and similar preparations they are rarely as satisfactory as those resulting from the retrograde injection of the kidneys through ureteral catheters. Good pictures are seldom obtained with uroselectan, skioldan, or neopax if there is much decrease in kidney function, and consequently faulty interpretation is not uncommon. Reports of untoward results following the intravenous injection of these preparations are beginning to appear in the literature.

PATHOLOGIC CONDITIONS OF THE UPPER URINARY TRACT MISTAKEN FOR DISEASES OF ADJACENT ORGANS

The most common pathologic conditions of the upper urinary tract that are mistaken for diseases of other organs are acute pyelitis or pyelonephritis, renal and ureteral calculi and strictures and kinks of the ureters with the resultant hydronephrosis. Anomalous vessels, bands and adhesions, involving not only the upper but occasionally the lower third of the ureter, while less common, are not infrequently responsible for

symptoms due to obstruction and are often overlooked. The appendix has been blamed most often for the symptoms in these cases, next in frequency the biliary tract and the female pelvic organs. Every urologist sees patients with pathologic changes in the upper urinary tract who have been subjected to unnecessary operations on other organs.

PYELONEPHRITIS

A mistaken diagnosis of acute appendicitis is most often made in the presence of pyelonephritis. Blesh,² reviewing five thousand surgical cases, in many of which the appendix had been removed, found that 40 per cent of the patients still complained of the same symptoms after as before operation. Lowsley and Twinem,³ in a review of eighty-four urological cases, found that thirty-nine patients had previously undergone some major surgical operation without relief of symptoms. Thirty-one had had the appendix removed.

* * *

CASE 1.—One of our patients complained of severe pain in the right lower abdominal quadrant and slight tenderness in the right costovertebral angle. Tenderness and rigidity was most marked at McBurney's point. The urine contained a few pus cells. The temperature was 102.6, pulse 92, respiration 22. The blood count showed 19,600 leukocytes, 82 per cent of which were polymorphonuclears. The surgeon made a diagnosis of appendicitis, but on opening the abdomen a normal appendix was found. The patient was comparatively free from symptoms for eight days when the previous symptoms returned. Exploratory laparotomy was considered, but microscopical examination of the urine now disclosed a large number of pus cells. A catheterized specimen of the right kidney urine contained numerous pus cells. Recovery speedily followed routine treatment for pyelonephritis.

* * *

CASE 2.—A girl sixteen years of age had suffered from sharp intermittent pain in the right lower abdominal quadrant for four months and nausea and vomiting for three weeks. There was marked tenderness over McBurney's point. The urine contained an occasional pus cell. A diagnosis of appendicitis was made, but calibration of the right ureter and pyelography revealed a stricture of the ureter and a slight hydronephrosis. All symptoms disappeared following dilatation of the ureter.

These are typical cases in which the mistaken diagnosis of appendicitis is made. As a rule the pain is less intense, the temperature and leukocyte count lower, and rigor more common in pyelonephritis than in acute appendicitis. Frequency of micturition is increased and the urine is usually turbid, as it always contains pus and not uncommonly blood cells. The patient rarely appears as ill in the former as in the latter condition. Gastro-intestinal symptoms are less common in pyelonephritis than in appendicitis, although the fact must be remembered that they occasionally predominate in various lesions of the urinary tract.

CALCULI

A mistaken diagnosis of acute or chronic appendicitis, cholecystitis, or cholelithiasis is not uncommon in the presence of renal calculi. The pain due to stones is usually more severe than

that in appendicitis or cholecystitis, and in over 80 per cent of cases radiates either upward or downward according to the location of the stone. Bumpus and Gershom,⁴ however, in a series of 1001 cases of ureteral calculi found that the pain was entirely epigastric in 162. Peptic ulcer had been diagnosed in seventeen, and in the remaining of the 162 a diagnosis of cholecystitis had been made. Renal and ureteral calculi are usually irregular in shape and of uniform density, although occasionally there are exceptions to these rules. The urine usually contains pus and blood and there is a decrease in kidney function. Disturbances of urination are common and if obstruction is complete or the stone in process of expulsion, pain is intense. The presence of renal or ureteral calculi can almost always be detected if stereoscopic pictures are taken with the kidneys and ureters at first uninjected and then injected through x-ray catheters inserted as far as the pelvis of the kidney. Wax-bulb catheters frequently aid in the detection of ureteral stones.

HYDRONEPHROSIS AND URETERAL OBSTRUCTION

Hydronephrosis and kinks of the ureter are readily detected by pyeloureterography, stricture of the ureter by pyeloureterography and bulbed catheters or bougies. The diagnosis of anomalous vessels and fibrous bands as the cause of ureteral obstruction is more difficult, but in the presence of dilatation of the renal pelvis without demonstrable strictures, kinks or calculi in the ureter they are to be suspected. A break in the continuity of the ureter, as seen in the ureterogram, is strongly suggestive. The possibility of dilatation of the pelvis of the kidney due to chronic infections and of the ureter because of decreased muscle tonicity is to be considered.

CASE 3.—A single woman, forty-three years of age, complained of pain in the lower lumbar region, lower abdomen, and down both thighs. She had had occasional attacks of frequent urination but no other symptoms. The uterus and both tubes had been removed seven years previously. A large firm irregularly shaped freely movable mass in the upper right quadrant, most prominent anteriorly, could be felt on palpation. On deep inspiration this mass, interpreted as the right kidney, apparently descended from above and posterior to the tumor. The urine was chemically and microscopically negative. The right ureter could not be catheterized because of a stricture in its lower third and consequently pyelography was impossible. Roentgenological diagnosis: Right kidney (Fig. 1) apparently normal in size, position, and contour. A mass is seen anterior to the kidney. In view of these findings pathologic changes in the kidney were considered improbable. A diagnosis of retroperitoneal tumor not connected with the urinary tract, as well as a stricture of the ureter, was made by the surgeon. Operation revealed an enormously dilated right renal pelvis



Fig. 1.—Marked hydronephrosis and hydroureter mistaken for a retroperitoneal tumor.

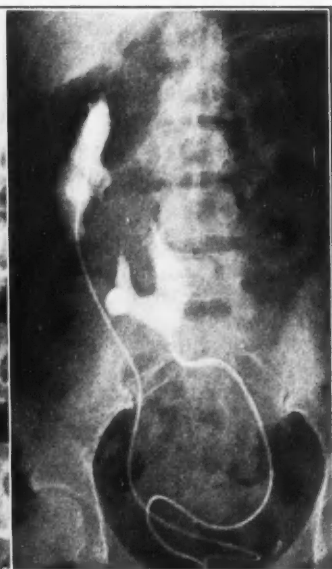


Fig. 2.—Probable horseshoe kidney. Very marked displacement of left segment.

and ureter and almost complete destruction of the kidney parenchyma. The kidney was removed. Pyeloureterograms following the intravenous injection of uroselectan, introduced since this case came under our observation, might have revealed the true condition. Because of the marked destruction of the kidney parenchyma, however, the nephrectomy was indicated.

HORSESHOE KIDNEY

A horseshoe kidney, the most common congenital anomaly of this organ, is occasionally mistaken for tumor of the pancreas, intestines, omentum, or retroperitoneal lymphatics as well as for an inflammatory exudate. Although subjective symptoms are often absent, pain or a sensation of pressure in the abdomen are common. Pyelography is necessary for a diagnosis. By this procedure overlapping of the calices due to the usual anteroposterior direction of the pelvis, because of incomplete rotation of the kidneys, will be found. Because of their close approximation the pelvis are nearer the vertebral column. If pyelography is not feasible, a diagnosis must be made by exclusion and is difficult or impossible.

CASE 4.—A single woman, twenty-two years of age, stated that she had suffered from intermittent pain in the right lower quadrant for a period of two years and pain in the right kidney region for the past week. She had first noticed a mass in the lower abdomen two years ago. She had never complained of any other symptoms of urinary-tract pathology. The appendix had been removed one year previously. Following this operation the mass as well as the pain seemed to disappear for a time. Urological investigation revealed a horseshoe kidney (Fig. 2) with some blunting of the minor calices. Marked relief from pain has followed ureteral dilatation.

ABDOMINAL AND OTHER CONDITIONS SIMULATING LESIONS OF THE UPPER URINARY TRACT

Much has been written concerning lesions of the upper urinary tract that have been mistaken

for pathologic conditions of other abdominal organs. Comparatively little is found in the urologic literature regarding extrarenal conditions responsible for symptoms suggestive of upper urinary-tract pathology. Mistaken diagnoses have been made in the presence of abnormalities or lesions of the gastro-intestinal tract, especially the appendix, of the biliary tract, spleen, adrenal glands, lymphatics, female pelvic organs, seminal vesicles, nervous system, chest, and a few other conditions.

APPENDICITIS

The pain due to appendicitis does not radiate, but may vary according to the location of the appendix. In the beginning it is most pronounced in the epigastrium and is usually accompanied by vomiting. Later there is tenderness along the course of the appendix and rigidity of the abdominal muscles. An appendix adherent to the bladder may be responsible for frequent urination and pain. Fever always accompanies acute inflammation of the appendix, and gastric symptoms are usually present in both acute and chronic cases. The presence of a few pus and blood cells in the urine, not uncommon during an attack of appendicitis, may be confusing. In the presence of an inflamed retrocecal appendix, with or without abscess formation, the pain is often located in the costovertebral angle, and differentiation from acute infection of the kidney or perinephritic abscess is sometimes difficult, if not impossible. If after a thorough examination acute appendicitis cannot be excluded, an exploratory laparotomy is not only justifiable but strongly indicated. The latter, sometimes performed in the presence of more chronic conditions merely with the idea of correcting any lesions that may be encountered, is not justifiable until every other means of diagnosis has been exhausted. Most renal and ureteral pathology cannot be detected by this procedure.

Chronic appendicitis is to be suspected if a history of recurrent attacks of pain in the region of the appendix, accompanied by gastro-intestinal symptoms, is given. The fact should be remembered, however, that pathologic conditions of the ureter and colon are frequently responsible for pain in this location. Liek⁵ analyzed one thousand cases in which appendectomy had been performed following a diagnosis of appendicitis and found only one hundred definite instances of this condition.

FECOLITHS

Fecoliths in the appendix are sometimes confusing.

CASE 5.—A married woman, thirty years of age, complained of frequency of urination and pain in the right lumbar region radiating toward the groin and to the inner side of the right thigh as far as the knee. She was also obliged to urinate three or four times during the night. An obstruction was encountered in the right ureter, fifteen centimeters from the bladder, beyond which the catheter would not penetrate. Radiography, after the insertion of an opaque catheter, revealed two well-defined shadows in the course of the ureter at the site of obstruction. A diagnosis of ureteral calculi was made and the ureter exposed extraperitoneally by means of a right inguinal incision. During an attempt to free the ureter from dense ad-

hesions in which it was imbedded, the peritoneum was opened and a long tortuous appendix, adherent to the ureter, was discovered. The appendix was removed and, when opened, two fecal concretions were found which were responsible for the shadows on the plate.

INTESTINAL TUMORS AND ADHESIONS

Tumors of the intestines, adhesions involving the intestines, diverticulitis and colitis are not infrequently suggestive of urinary-tract pathology.

CASE 6.—A patient complained of occasional attacks of pain and tenderness in the upper right abdominal quadrant. These symptoms were increasing in severity. Marked prolapse of the right kidney was found on examination. Cystoscopy and functional kidney tests were negative and the attacks of pain were considered due to kinking and the resultant obstruction of the ureter following displacement of the former organ. The pain did not disappear after nephropexy, however, and an exploratory operation one month later revealed a carcinoma at the beginning of the transverse colon. The symptoms disappeared following resection.

Pyeloureterography, not feasible at the time, would have ruled out a kink or stricture of the ureter.

Pain accompanying lesions of the sigmoid and colon is often referred toward the kidneys or genitalia. Most of these conditions, however, will be detected following a series of good gastro-intestinal pictures.

GASTRIC AND DUODENAL ULCERS

In gastric ulcer, pain usually occurs from one and one-half to two hours, and in duodenal ulcer from two to four hours after food. Fever is absent. The roentgenogram following the ingestion of barium usually reveals these conditions. Sharp, sudden, localized pain and shock accompany the perforation of gastric and duodenal ulcers. Unlike that following perforation of the appendix the pain does not completely disappear.

BILIARY TRACT

In pathologic conditions of the gall-bladder the pain in the right upper quadrant is often referred toward the right or both scapular regions or toward the midline. As a rule it is not intense unless a gall-stone is in process of expulsion. Flatulence, vomiting, and jaundice are common. When these symptoms are absent, disease of the biliary tract is frequently overlooked. Gall-stones, unlike renal and ureteral calculi, usually have a dense periphery. They are usually multiple, of equal size and shape and closely approximated. They are never branching. Gas bubbles in the intestines and calcifications in the rib cartilages occasionally resemble them. Stereoscopic pictures will show that gall-stones are anterior to the kidney. Their shadows are larger in x-ray films taken in the anteroposterior than in those taken in posteroanterior direction. Following visualization of the gall-bladder after the administration of tetraiodophenolphthalein, gall-stone shadows are seen to be included in the cholecystograms. Cholelithiasis is usually present if the gall-bladder fails to fill with the dye.

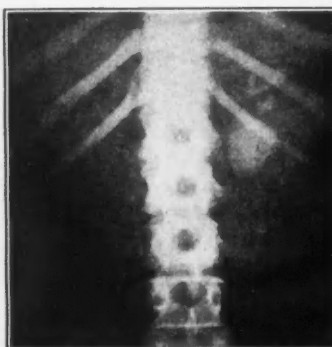


Fig. 3.—Hypernephroma of left adrenal gland, causing marked downward displacement of the kidney and spleen.



Fig. 4.—Same case, only the lower calyx of the displaced kidney is outlined in the pyelogram.



Fig. 5.—Reniform mass containing discrete calcifications. Inactive echinococcus cyst found at operation.

In pathologic conditions of the liver a sense of fullness is felt in the upper abdomen, and pain or soreness, if present, are nearer the midline. Anorexia, nausea, vomiting, and weakness are common, and jaundice is usually present. Examination of the blood reveals an increase in the icteric index, and bile pigments are found in the urine. Anomalies of the liver are frequently present without subjective symptoms.

PANCREATIC AND RETROPERITONEAL TUMORS

Cysts and malignant tumors of the pancreas and retroperitoneal tumors are occasionally mistaken for kidney growths. Pyeloureterography will usually exclude the latter, however, although pressure on the right ureter from a pancreatic growth may be responsible for hydronephrosis. Pressure on the common duct produces jaundice and other symptoms due to obstruction.

A case which I saw while visiting a foreign clinic some time ago is interesting in connection with retroperitoneal growths.

* * *

CASE 7.—The patient, a woman fifty years of age, complained of a "lump" in the right side of the abdomen. Examination revealed a somewhat sensitive, slightly movable mass about ten centimeters in length and five centimeters in breadth, occupying part of the upper and lower right abdominal quadrants. The center of the mass was on a level with the umbilicus. A catheterized specimen of bladder urine contained a number of pus cells. A gynecologist and his assistant made a positive diagnosis of tumor of the kidney, and did not consider other diagnostic measures necessary. Operation, however, revealed a retroperitoneal lymphosarcoma.

This error would have been avoided had pyeloureterograms been taken. These will reveal a deformity of the renal pelvis in almost every instance in the presence of tumor of the kidney.

TUMORS OF THE ADRENAL GLANDS

Deformity of the kidney pelvis in the absence of renal pathology may be caused by pressure from tumors of the adrenal glands.

* * *

CASE 8.—A married woman, twenty-nine years of age, stated that two years previously she had suffered from pain and swelling in the upper left quadrant, burning pain on urination and fever. The urine con-

tained blood and pus. The symptoms continued for two weeks. She had been in good health since that time except for occasional slight pain in the upper left quadrant until one month ago. Since then she had complained of pain and swelling in the left lumbar region. Palpation revealed a mass to the left of the umbilicus. The lower pole of the left kidney could apparently be felt above this mass. The urine contained a few leukocytes. The first x-ray report was as follows: Left urinary tract plain (Fig. 3) and injected (Fig. 4). After injection through ureteral catheters a part of the left kidney pelvis is outlined, with one calyx, apparently the lower major calyx. This calyx connects with a kidney-shaped but rather small organ which is situated close to the left side of the spine at the level of the third and fourth lumbar segments. The spleen-shaped shadow which lies to the left and below this small kidney is probably the spleen, displaced very far downward from its usual position. Above the small kidney described there is a large mass which is interpreted as another left kidney connecting with the same pelvis. Within what would be the pelvis of this larger left kidney there are opacities characteristic in shape of lobular calculi in a kidney pelvis. A suggestion of outlines of calyces by stones is obtained. It is of course possible that this larger kidney has a separate ureter, but the position of its pelvis, outlined by the stones it contains, and the fact that only one calyx is reported in the kidney pelvis as outlined by the injected material, suggests that the larger kidney on the left connects with the same pelvis as the small kidney.

Conclusions: Two kidneys or double kidney on the left, the lower and smaller one normal but displaying only one calyx. The larger one uninjected but with its pelvis partially outlined by multiple calculi. There is also demonstrated a marked displacement of the spleen. A normal appearing right kidney shadow is demonstrated. The next x-ray report, taken a few days later, showed the same appearance as before. The injection was unusually complete, the ureter being filled down to the bladder. No secondary ureter was demonstrated. A little iodid had run into the right kidney pelvis also, but not sufficient to demonstrate it satisfactorily. The x-ray films taken eight months later showed a shadow in the upper left side of the abdomen which was interpreted as a large diseased left kidney, while the smaller kidney-shaped shadow immediately caudad to it was known to be a kidney because of the findings in the previous pyelograms. The shadow interpreted as spleen, displaced downward, was again demonstrated. The calcifications in the upper left kidney had increased in density and amount since the last examination. The appearance of these calcifications and their growth strongly suggested tuberculosis. The guinea-pig test, however, was negative. Kidney function was slightly less on the left side. Operation was refused.

Diagnosis: Either a supernumerary kidney or a double kidney on the left side. Calcifications in the

upper kidney. Autopsy showed the mass interpreted as an additional kidney on the left side, or the larger upper portion of a double kidney, to be a hypernephroma of the left adrenal gland with metastases in the lungs and lymph nodes of the mediastinum and neck.

CASE 9.—The differential diagnosis was also interesting in one of my cases in which pigmentation of the skin and high blood pressure were suggestive of tumor of the adrenal gland, while marked deformity of the left renal pelvis and absence of function in the corresponding kidney pointed to a renal tumor. Autopsy revealed an enormous hypernephroma of the left adrenal.

The most common subjective symptoms of adrenal tumors are weakness and loss of weight due to the accompanying anorexia, also vomiting, diarrhea and pain, the latter usually extending from the upper lumbar region toward the corresponding shoulder and across the abdomen. The objective symptoms, in the order of their frequency, are a palpable mass, pigmentation of the skin, hematuria, elevation of temperature, and premature sex development. Pus, albumen or casts are occasionally found in the urine and deformity of the renal pelvis, disclosed by pyelography, is not uncommon.

CASE 10.—A married woman, forty-seven years of age, complained of pain in the right lumbar region which had progressively increased in severity during a period of five years. Palpation revealed an indefinite, nonsensitive mass in the upper right abdominal quadrant which was also easily palpated in the right lumbar region. The urine contained sugar and a few pus cells. On x-ray examination a reniform tumor (Fig. 5) containing discrete calcifications in its center was found in contact with the diaphragm on the right side. The duodenal cap showed a pressure defect suggestive of gall-bladder disease. Both kidney urines contained a few pus cells, the right more than the left. The function of the right kidney was slightly less than that of the left. Pyelography showed normal renal pelvis. Operation revealed a smooth, somewhat kidney-shaped mass, 9 by 7.5 by 5 centimeters in size between the parietal pleura covering the diaphragm and the diaphragm itself. This was removed. On examination for pathologic changes it was found to be an inactive echinococcus cyst.

CALCIFIED GLANDS AND PHLEBOLITHS

Calcified glands and phleboliths are frequently responsible for shadows in the region of the kidneys and ureters, and regardless of how certain the urologist may be that a stone is present, pyeloureterography is always indicated.

CASE 11.—One of our patients complained of frequent urination, dysuria, and pain in the lower right abdominal quadrant. Prior to injection of the renal pelvis the x-ray film revealed a shadow in the kidney region that was very suggestive of a stone. It proved to be a calcified gland. The urinary symptoms were apparently due to cystitis and urethritis.

Lesions of the lungs and pleurae are occasionally responsible for symptoms suggestive of urinary tract or abdominal pathology. Pneumonia is occasionally responsible for pain in the lumbar region and if not suspected may be overlooked. One of my colleagues was much chagrined recently when an internist called in consultation found this to be the sole etiologic factor. There was no urinary-tract pathology.

Chute⁶ reported two interesting cases in which pain in the left groin was due to splenitis. A lesion of the kidney was at first suspected.

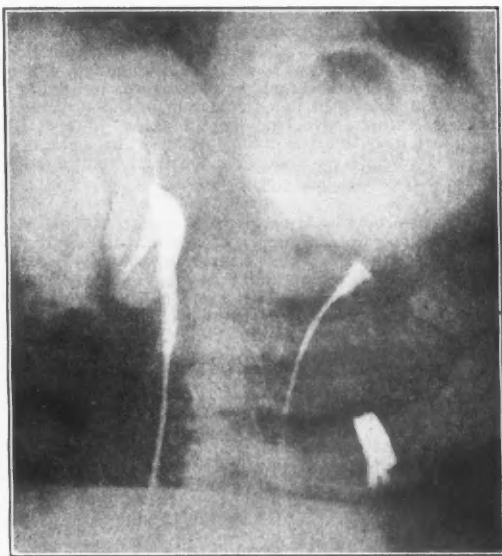


Fig. 6.—Obliteration of the middle calyx of the right kidney. Very little enlargement of the kidney notwithstanding the presence of a tumor.

COEXISTING LESIONS

The possibility of pathologic conditions and anomalies of both urinary tract and adjacent organs is to be considered when the question of diagnosis arises. Concomitant lesions of the right kidney and biliary tract, for instance, are not infrequently encountered. The following cases are interesting and instructive in this connection.

CASE 12.—Mrs. A. D., seventy-eight years of age, a widow, complained of blood in the urine and frequent urination of one month duration. One and one-half years ago she had passed blood in the urine for about a week. A fairly firm, nonsensitive movable mass with rounded edge was found in the right side of the abdomen on palpation. Its lower margin extended below the crest of the ilium. Cystoscopy revealed a small hemorrhagic area on the bladder wall below and to the left of the right ureteral orifice. The urine from the right kidney contained a large amount of blood. The x-ray films showed a right kidney outline that was smaller than normal. Following another x-ray examination three weeks later, however, the shadow of a mass the lower border of which extended below the crest of the ilium, was detected. This was apparently a Riedel's lobe of the liver. Pyelography (Fig. 6) showed the absence of the middle calyx of the right kidney. The other calices were drawn out and obliterated. Diagnosis: Tumor of the pelvis of the right kidney. Riedel's lobe of the liver. Operation was refused.

CASE 13.—Another patient with multiple lesions and in whom the diagnosis was at first uncertain suffered from rotation of the kidney due to fixation of the right ureter just below the ureteropelvic junction, stone in the left ureter, hypertrophic cirrhosis of the liver, and diabetes.

CASE 14.—A male patient, fifty-two years of age, complained of periodical attacks of slight pain or aching in both lumbar regions and the upper abdominal quadrants. These occurred more frequently on the right side. He had passed a small stone twenty-eight years previously. Examination revealed a median bar at the bladder outlet, slight strictures

of both ureters, and bilateral pyelonephritis. Complete relief of the bladder obstruction followed excision of the bar with the Collings electrotome. The infection disappeared and the pain decreased following dilations of the ureters and irrigations of the kidney pelvis. An attack of jaundice accompanied by a sensation of fullness over the liver and loss of appetite called attention to the biliary tract. The pain disappeared completely following treatment for a concomitant hepatitis.

CASE 15.—A woman, sixty years of age, complained of knife-like pains in the right abdominal quadrants of three months' duration. There was tenderness over the gall-bladder region, but no other symptoms of biliary-tract pathology. The urine contained two to three pus and blood cells in each high-power field. Cystoscopy revealed an injected bladder mucosa, edema around the left ureteral orifice, and a stricture of the left ureter. The function of the left kidney was less than that of the right. Both kidney pelvis appeared normal following pyeloureterography. Temporary relief only followed dilatation of the ureter. A bismuth enema revealed a constriction at the sigmoid flexure. At operation, in addition to a small liver, general carcinomatosis was found.

CASE 16.—A married woman, fifty years of age, complained of attacks of pain in the left lumbar region and nausea and vomiting, since an operation for repair of acystocele and prolapse of the pelvic organs six months previously. The bladder had been irrigated because of pus in the urine on numerous occasions. She had been in the hospital several times for short periods. The urine contained an enormous number of pus cells. Cystoscopic investigation revealed an elevation of the trigone and lower portion of the bladder neck, an inflamed bladder mucosa, and a marked hydronephrosis with almost complete destruction of the left kidney. Improvement followed nephrectomy but she still complained of occasional nausea and vomiting, together with more or less general abdominal pain. About ten days after operation she became slightly jaundiced and an increased icteric index was found on examination of the blood. Recovery followed treatment for hepatitis.

CONCLUSIONS

A complete urological study is indicated in all obscure abdominal conditions.

The urologist should have some knowledge of all of the pathologic conditions of the abdomen and pelvis, as an examination of the abdominal and pelvic organs is necessary when the diagnosis of a reno-ureteral lesion is at all uncertain.

A diagnosis of chronic appendicitis should be looked upon with suspicion, and operation is not to be considered prior to a thorough investigation of the right kidney and ureter. Pain in the lower right abdominal quadrant is seldom due to disease of the appendix in the absence of other symptoms of this condition.

The urologist should be proficient in the interpretation of pyeloureterograms, as pyeloureterography is probably of more value than any other single procedure in the differential diagnosis of lesions of the upper urinary tract and in their differentiation from pathologic conditions of the abdomen and other organs adjacent to the kidneys and ureters. A complete history, careful physical examination and study of the laboratory findings should, however, always accompany this procedure.

Coöperation of the general surgeon, internist, gynecologist, and the urologist is very often indi-

cated in the presence of symptoms suggestive of abdominal pathology.

870 Market Street.

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DISCUSSION

CHARLES P. MATHÉ, M.D. (450 Sutter, San Francisco).—We are indebted to Doctor Stevens for his timely paper clarifying the differential points in the diagnosis of diseases of the kidneys and ureters and those of the abdominal organs. Not many years ago, frequently the urologist was called for diagnosis on a patient on whom the surgeon had previously operated on one of the abdominal organs when the seat of the disease was actually in the kidney. In those days about the only patient referred for urological examination was one presenting the classical signs and symptoms of kidney stone. The differential diagnosis of diseases of the kidney and ureter is particularly hard when it occurs on the right side because of the presence of the liver, gall-bladder, and appendix. On the left side the spleen and pancreas offer less confusion. Often there is a concomitant infection of the gall-bladder, liver or appendix, and treatment, in order to be successful, must not only be directed to the kidney and ureter, but also to these other diseased organs. Fortunately, in recent years much has been done by urologists, internists, and surgeons to educate the general practitioner as to the importance of considering the kidneys and ureters when making a diagnosis of any abdominal condition. As a result of this education of the physician, urologists are now often called to assist in making the diagnosis before the operation. I recall a patient whom a very intelligent physician, residing in one of the neighboring towns of San Francisco, had sent to me because of tumefaction of the upper right abdomen accompanied by pain, tenderness in the costovertebral angle, chills, and fever. Urological investigation ruled out a kidney lesion, and a consultation with an abdominal surgeon revealed phlegmon of the gall-bladder. It was successfully removed and numerous adhesions of the gall-bladder and the liver to the right kidney were responsible for originally attracting our attention to the kidney rather than to the liver.

Doctor Stevens calls attention to the fact that a negative urine analysis does not exclude kidney disease, particularly in those patients in whom the ureter has been completely occluded by virtue of some pathologic condition. It is not uncommon to find a well-advanced tuberculous kidney in which the ureter has been entirely closed by advanced stricture formation. I recall a woman who had a calculous pyelonephrosis in which the ureter was closed and who had been unsuccessfully treated for Bright's disease over a period of eight years because of toxic nephritis. The kidney was sealed off and the pus, blood, and bacteria contained in this organ were prevented from entering the bladder. A large pyelonephritic kidney was removed after which the toxic nephritis existing in the opposite kidney cleared up.

I am glad to see that Doctor Stevens emphasizes the importance of taking ureteropyelograms in the vertical as well as the horizontal and Trendelenburg positions. Omission of this important point is responsible for the nonrecognition of many mobile kidneys in the past. Furthermore, a very important diagnostic point is lost if this procedure is not followed routinely. In 1925 I called attention to the fact that kidneys presenting cortical abscess formation, perinephritic abscess and perinephritis, were more or less anchored

in place and did not even show normal mobility in the upright posture—a range of motion which varies from two to five centimeters in the average individual. This is of great aid in the diagnosis of obscure conditions such as cortical renal abscess, perinephritic abscess, and perinephritis. These are often incorrectly diagnosed and improperly treated because they have been confused with other diseases such as malaria, typhoid fever, and influenza.

Doctor Stevens' paper is of real value. It will aid the physician to bear in mind pathologic lesions of the kidneys and ureters when making an abdominal examination. It also emphasizes the important point that diseases might concomitantly exist in the kidneys and ureters and in the abdominal organs. As the result of this education, the pendulum is swinging the other way and an increasingly number of patients are daily referred to the urologist for diagnosis, and this specialist must be well up in the diagnosis of abdominal lesions in order not to confuse them with those of the upper urinary tract.

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WIRT B. DAKIN, M. D. (606 Chapman Building, Los Angeles).—It has been my observation that the best informed internists and general surgeons are the first to secure the aid of the urologist in many of their more obscure and complicated cases with symptoms of diseases of organs adjacent to the upper urinary tract. They lose little time in informing these patients that it is advisable to have the services of a urologist to help with the differential diagnosis. The urologist, in turn, by working in cooperation with a good x-ray department, will soon have reliable data to offer that will confirm or contradict any findings submitted by the internist or surgeon.

Doctor Stevens' statement that in about 33 per cent of all patients entering the hospital with uncertain diagnoses urologic investigation is indicated is well worth remembering.

Unnecessary examinations of any nature are to be avoided, but we must not forget that a patient may have more than one ailment and the urologic examination may reveal that some pathologic condition in the genito-urinary tract needs attention before anything else is attempted.

Faulty interpretation of certain intravenous pyeloureterographic findings is mentioned by the author. This was anticipated by the urologists when uroselectan was first given to the medical profession, and especially when certain commercial laboratories began to use it. An occasional mistake in diagnosis is overlooked by our colleagues. At least some errors could be avoided if more diagnostic data were available. This is not always the physician's fault. Frequently, in one way or another, the patients do not cooperate.

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LOUIS CLIVE JACOBS, M. D. (Four-Fifty Sutter Street, San Francisco).—Dr. William E. Stevens' thesis is of extreme importance. It emphasizes the rapid progress which has taken place in recent years in the differential diagnosis and treatment of surgical pathology of the urogenital tract and adjacent organs. The demand for more accuracy in the diagnosis of diseased organs by the internist and allied specialists has resulted in the development of the specialty of urology.

The author's paper clarifies some intricate problems in differential diagnosis, and demonstrates a practical knowledge of physical clinical signs as well as a specialized understanding of urinary pathology.

The modern urologist must be competent to recognize urologic pathologic changes and to differentiate them. He has not only been trained in the use of the cystoscope, but can combine, when the occasion arises, his vesical instrumentation with the ureteral catheter and x-ray. He should be sufficiently conversant with human anatomy and physiology for purposes of orientation.

It is not unusual to see patients suffering from abdominal pain, associated with muscle rigidity, who are submitted to major operations such as appendec-

tomies, hysterectomies, cholecystectomies, disregarding examinations of the urological tract. There is often muscular rigidity present in patients chronically ill for a long period of time due to the stricture of the ureter. They immediately respond when the ureter has been dilated and free drainage from the kidney restored.

The x-ray has been a valuable aid, both in diagnosis and therapy, especially when combined with the ureteral catheter or used in conjunction with retrograde or intravenous pyelography. Plain roentgenograms should be taken before resorting to pyelography, as occasionally some pathologic lesion is obscured by a shadow-producing drug.

Cystograms are invaluable for the study of vesical and extravascular pathologic changes in both sexes.

On account of the confusion at times in making an accurate differential diagnosis of appendicitis from ureteral pathologic changes or an abdominal tumor from a renal tumor, we must utilize every diagnostic procedure at our command. Every diagnosis made should be correlated by proper laboratory work.

ORGANIC SOMATIC DISEASES—ASSOCIATED WITH NERVOUS AND MENTAL DISTURBANCES*

By JULIAN M. WOLFSOHN, M. D.
San Francisco

DISCUSSION by Thomas G. Inman, M.D., San Francisco;
Samuel D. Ingham, M.D., Los Angeles.

THE relationship of organic somatic disease to the psychoses has long been sought. Hippocrates, two thousand years ago, stated that "the brain is an organ of mind; that any insane state is the result of the disturbance of this organ." He described many instances of this relationship to prove his theory, but it fell into the discard during the many subsequent centuries with but an occasional adherent. It was not really until one hundred years ago that mental disease was studied systematically, and since then we find that one by one the etiology of abnormal mental states was discovered and properly classified. This obviously tends to simplify the conception of psychiatry as a whole, and links it more closely to other better understood divisions of medicine, namely, medicine proper and surgery.

SCOPE OF THIS DISCUSSION

It is not the purpose of this paper to enter into an exhaustive treatise on the development of psychiatry, but to try to bring forward the experiences of others and myself with psychoses related to somatic disease and finally to theorize on the probable mechanisms at work.

Fifty-five years ago Maudsley, speaking of body and mind, said: "The immediate business which lies before anyone who would advance our knowledge of mind, unquestionably, is a searching scrutiny of the bodily conditions of its manifestations in health and in disease. The brain is the seat of the psyche, but the functions of mind are dependent upon the whole body and the harmonious interaction of all its parts."

Formerly it was taught "mens sana in corpore sano," which implies a healthy mind dwelt in a

* Read before the Neuropsychiatry Section of the California Medical Association at the sixtieth annual session, San Francisco, April 27-30, 1931.

healthy body. We all agree that a diseased body can possess a healthy mind, and vice versa. Many persons with apparently healthy bodies, as far as we can determine, possess disordered minds of varying degrees and kinds including the neuroses, psychoses, et cetera. It is to the future that we look for discoveries in biochemistry and biophysics to elucidate conditions which are dependent on hereditary and acquired bodily defects. Just because they have not already been found, is no argument that they do not exist.

Today mental disturbances are being attacked not only along biologic, biophysical, and biochemic lines, but also, and to a much less extent than a decade or two ago, from the psychological aspect.

Bernard Hart suggests that "causes now called psychical may ultimately be capable of expression in anatomical and physiological language." The mere process of formulating an idea which in turn demands "attention" implies a physicochemical change in some part of the brain. If there are normal brain cells and normally functioning association systems, the individual is adjudged mentally normal. If otherwise, we say he is suffering from a neurosis, a psychosis, or other abnormal mental state. One should thus start with the theory that purely organic conditions are the determining factors in all abnormal mental states.

In these days when the stress of modern life of this machine age is of increasing importance, we should expect, and in fact we do find, a proportionate increase in abnormal mental states produced in many cases primarily through psychical channels, and secondarily, the ulterior effects producing endocrine dystrophies, gastro-intestinal intoxications, chronic infections, and other conditions. These etiological agents for some mental disorders are accepted by all. How these factors enter into the problem will be discussed later.

Monrad Krohn says of the so-called functional mental disorders: "The only thing we know is that they, as a rule, are unaccompanied by organic change so gross that they can be discovered by the means at present at our disposal. Until we find reliable methods of studying the pre-natal stages of cell degeneration, we have obviously no right to deny the possibility of organic change."

We all accept the organic origin of such mental disorders as the presenile and arteriosclerotic psychoses, the infective, exhaustive, and toxic psychoses; but it is the more subtle functional mental disorders in which an explanation of the processes causing the disorder is necessary.

Dr. Henry Cotton of Trenton, and others, have preached for years that organic causes have a remote influence on cerebral cells.

Cotton claims to have effected cures in 87 per cent of his cases by removing foci of chronic sepsis which he was able to locate in septic teeth, tonsils, and colons. His remarkable results have not been so successfully repeated by other workers, but everyone accepts the importance of his tenets.

With this important subject in mind the writer has selected from a large series six cases of or-

ganic somatic disease, which when removed the associated mental symptoms rapidly disappeared, and the patients have remained symptom free for at least six years. The possible explanation for these results, which no doubt can be duplicated by others, will be attempted after the exposition of the following cases.

Note: In the cases reported below, all laboratory work including urine, stool, Wassermann, basal metabolism, blood count, x-rays, including the skull and, when indicated, the gastro-intestinal system, were reported normal in every instance.

REPORT OF CASES

CASE 1.—Manic depressive psychosis, manic phase, in a young woman eighteen years of age. Neuro-pathic family history. This patient was always sensitive, made friends easily, but her feelings were readily hurt. Not inclined to worry. Her past history was uneventful.

The onset of her psychosis appeared rather suddenly with a marked motor and psychic restlessness which evolved into a maniacal state. She became delusional, would lie for hours on her bed with arms stretched in the form of a cross, draped herself with flowers and ornaments, and then would suddenly tear her hair and pace up and down her room for hours talking to imaginary people, etc. Her condition, in spite of the usual treatments, remained more or less constant for one year, when, during an abdominal examination, she evinced great pain on deep pressure over the right lower abdominal quadrant. There had been no abdominal complaints at any time previously.

At operation there was found an old walled-off retrocecal abscess containing four ounces of thick malodorous pus from a previously ruptured retrocecal appendix, no doubt of long standing and which must have been present for much longer than one year. Within two weeks of operation, without any other form of treatment, the patient recovered her mental faculties and has been well to date, a period of ten years.

* * *

CASE 2.—Manic depressive psychosis, depressed phase in a woman twenty-nine years of age. One child living and well. Family and past histories uneventful, except that the patient for a few years prior to onset of present illness liked to be by herself, was morose, and occasionally complained of pains preceding the menstrual period. The onset of her illness was indefinite. She became more morose, suffered from insomnia, lost interest in life, imagined she had done many indiscreet things for which she was now being persecuted. There was only partial insight. During the four years in which she was constantly in this depressed state, she had attempted to destroy herself three times, besides breaking a thermometer purposely and swallowing some of the glass. At this time physical examination was quite negative, except for large, swollen, tender ovaries, worse on the right side.

At operation several cysts, measuring two inches in diameter, and many smaller cysts were removed from the ovaries. The patient convalesced normally, and without other treatment returned to her home three weeks later. Her mental state has been quite normal during the past six years. There has been, however, a tendency to easy exhaustion only.

* * *

CASE 3.—Psychasthenia in an intelligent man, sixty years of age. This patient for ten or twelve years was irritable, suffered from obsessions, fears of crowds, closed places, and from easy fatigue. Examinations had never disclosed any physical abnormalities. Psychotherapy had been tried on several occasions for prolonged periods. Temporary relief only was obtained.

On examination the only abnormal finding was a very large prostate gland, hard on palpation over the right, and rather succulent on the left. Very little residual urine was found. No dysuria. The prostate was removed finally, and eight weeks later the patient returned home and has been, to all intents and purposes, mentally stable during the past seven years.

CASE 4.—Manic depressive psychosis with melancholia and confusion in a woman, fifty-six years of age. This patient claimed never to have been sick in her life until one year after her menopause, at the age of fifty-three. She was always lively and considered the life of the party socially—not depressed or sensitive. Family history and past histories unimportant, except for chronic constipation.

Between fifty-three and fifty-four years of age she became gradually peevish and irritable, had some insomnia, and "bad breath" was complained of. She began to shun society, much to the surprise of her friends. She lost interest in things she formerly loved to do—would not read, and would sit for hours looking into space and appearing quite confused. Her speech was reduced practically to monosyllables. Food became very distasteful. Only slight relief was obtained by the usual methods adopted for mental cases of this kind. This patient was placed in a sanitarium.

On examination the patient exhibited the melancholic habitus. Physical examination was negative, except for large septic protruding hemorrhoids. These were removed and five weeks later all of her mental symptoms disappeared, and she has returned to a modified social life which has kept her quite normal and happy during the past six years.

CASE 5.—Manic depressive insanity, depressed phase, in a young woman twenty-seven years of age. This patient was a school teacher, inclined to be always overscrupulous. Rather decided in her opinions. Inclined to brood, but had had no need of medical attention until she was twenty-five and one-half years of age. Gradually began to tire easily, and suffered from insomnia. Her school work was too arduous, her pupils trying. She began to brood and suffered from vague abdominal symptoms. Would cry at the slightest cause, and would suffer from waves of depression.

In one and one-half years, according to her statement, "I have seen very few hours of sunshine."

On examination the only positive findings were six devitalized infected teeth, and buried infected tonsils, which were removed; the teeth first and the tonsils two weeks later. After an interval of one month she volunteered the information that she felt well enough to be without further medication, or medical care, and has been mentally well for the past six years.

CASE 6.—Neurasthenic state, severe, with hypochondriasis in a young man of twenty-four, who for eight years had been a sufferer from marked gastric distress, acid eructations, coated tongue, capriciousness in food selections, headaches, burning sensation of the skin, and easy fatigue. Patient would wake up tired, and had a rather pessimistic outlook on life. His hands and feet were always cold and clammy, even on hot days, and his heart "throbbed" on the slightest exertion. His previous history was unimportant, except for the fact that he was always nervous and worrisome.

On examination the positive findings included a fine rapid tremor of his cyanotic, cold, clammy hands. An enlarged soft thyroid gland, and large imbedded tonsils, the right one of which when pressed showed the presence of a deep collection of greenish fluid pus with bad odor. These tonsils were removed, and x-ray treatment was applied to the thyroid gland. In three months, during which time the patient received no other treatment than that which he had taken previous to the operation, he had lost practically all of

his gastric and vasomotor symptoms. He gained twenty-two pounds in weight, and during the past eight years has not had need of treatment for his previously incapacitating condition.

COMMENT

The symptoms presented by patients, reported on Cases 2, 3, and possibly 4, were primarily caused by somatic nonseptic processes located in and about the pelvis, which is so richly innervated by the vegetative nervous system. The constant morbid increased pressure on these nerves produces an irritation or perverted stimulation instead of normal, healthy impulses. Varied amounts and kinds of irritation, in susceptible individuals, results, in turn, in a conditioned reflex of abnormal character, which affects not only the whole vegetative nervous system, but also the endocrine system and ultimately the neurones of the central nervous system itself.

We must accept as axiomatic that causes remote from the central nervous system cannot produce nervous or mental symptoms directly. The above mentioned causes produce a chronic fatigue state which lowers the resistance of the nerve cells in question to the point when toxic effects originating within the cell itself, or from toxins arising outside the cell, take place.

The relationship of infected foci in patients reported as Cases 1, 5, and 6 to the mental symptoms can just as readily be accepted. Cotton and others have detailed numerous such recoveries. Anatomical lesions in organs other than the nervous system, especially "septic foci are known to change the metabolism, contaminate the blood with abnormal products which disturb the chemical exchange and nutrition of the brain cells." As Cotton says, "We may get a direct action on the cerebral elements by the morbid agents carried directly through the circulation—toxins or micro-organisms."

From these cases we can see that the symptoms, sometimes of a profound character, even though lasting for twelve years, may not be associated with permanent changes in the nerve cells. However, in other cases the changes in the brain may be permanent, so that repair after the elimination of the exciting cause, whether of toxic or other nature, is no longer possible, and accounts for some of the incurable cases.

In all the cases cited, mental distress, such as mental shocks, chronic worry, and disappointments were present, preceding and including the psychotic episode. It is hard to believe that ideational factors produce the nervous symptoms directly, but that they bring into being changes in the endocrine system which, in turn, affect the vegetative nervous system, and finally the cortical neurones, which produce the sensations, stimuli, or ideas which we interpret in the patient as symptoms of his disorder. The mechanism may also be explained by a lowering of the bodily resistance due to the above changes, so that the patient's immunity to infection disappears, and what was a latent process suddenly becomes active and attacks the cortical cells, as Cotton has pointed out.

One does not believe it to be straying far from facts to state that, though a psychogenic factor may be the "last straw" in precipitating a psychosis in a susceptible individual, the real origin of the morbid condition is an intracellular biochemical disturbance of the cortical neurones, endocrine dystrophy, or disturbed metabolism of tissues not yet suspected of complicity, which may or may not produce permanent or transient changes in the cortical nerve cells. This explanation may account for some cases of manic-depressive insanity in remission, or in certain other periodic psychoses or neuroses. To prove this the pathologist and biochemist will have the last word.

In other words, we can consider that diseases of special organs, especially about the pelvis, and general ill health from lowered vitality, precede and become the cause of morbid states of the brain which end in neuroses or psychoses.

CONCLUSIONS

1. It is our duty as physicians to practice general medicine in its broadest sense in order to see whether or not any bodily condition is present which can act as a cause or contributing factor in the production of abnormal psychic states. In many cases the patient is unaware of any physical cause which may have a bearing on his mental state.

2. Six cases of mental disturbance, including the neuroses and psychoses, are presented in which the symptoms were present for long periods. Shortly after the removal of the offending physical causes, a remission, which in each patient has persisted for over six years, was produced.

3. We will advance further and more quickly toward control and limitation of mental disturbances if we study from all angles at our disposal the physical influences and also, to a less extent, the subtle moral influences which play a rôle in their production.

4. Insanity is a bodily disorder, a disease of the brain in which certain changes have taken place. This implies a departure from healthy physiologic action. In consequence of these changes there is a more or less prolonged disturbance of mind.

5. Disease of any part of the organism, including the brain, may be the cause of insanity. In such cases the mental disturbance will not be manifested until the specific cells of the brain controlling thought and ideation are affected.

490 Post Street.

DISCUSSION

THOMAS G. INMAN, M. D. (2000 Van Ness Avenue, San Francisco).—With the main argument advanced by Doctor Wolfsohn there should be no disagreement. The mentally disturbed patient is entitled to the same careful medical survey accorded to individuals whose complaints suggest the presence of somatic disease. Infectious processes, circulatory disturbances, endocrine dysfunctions and painful or irritative disorders are frequently found in association with grave mental derangement. Whether the latter depends solely upon the physical disease or is only set free by it, is beside the question. It is sufficient for the moment that the individual be returned, if possible, to his former condition of health.

When we consider the specific effect of certain known chemical substances upon the mental functions, it is easy to imagine that deleterious materials

produced within the body might also act in a definite and specific manner. Mind, as we know it, is a product of brain function and, to a large extent, the mental qualities exhibited by an individual depend in some way upon the anatomic construction and physiologic function of that individual's brain. It is to be expected, then, that noxious substances produced within the body may so interfere with the functions of the brain that it is no longer able to act in an orderly fashion.

But if the fairly constant effects upon cerebral function caused by hyper- and hypothyroidism be expected, and the toxic, arteriosclerotic and luetic psychoses be excluded, there still remain a group of psychoses and neuroses the causes of which seem to lie entirely within the ideational domain of mind. To determine the true nature of the psychologic disturbance is the first objective of the neuropsychiatric examination. If it is possible to differentiate between a primary and secondary mental disorder the patient may be saved much valuable time and expense, ill advised operative interference may be prevented, and suitable treatment instituted at once.

An inherent weakness in psychiatric diagnosis lies in the lack of reliable working models, psychologic constants, or fixed mental patterns the recognition of which will surely lead to a diagnosis of the malady in question. To some extent modern psychologic studies have seemed to make the vision a trifle clearer and may eventually bring about a better understanding of the nature and causes of the psychoses. Until that time careful elimination of somatic disease along the lines suggested by Doctor Wolfsohn will be in order.

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SAMUEL D. INGHAM, M. D. (727 West Seventh Street, Los Angeles).—The case histories presented by Doctor Wolfsohn emphasize the importance of various pathologic conditions remote from the brain as etiologic factors in the production and maintenance of abnormal mental states. Although everyone will probably agree with this point of view, the subject still justifies the emphasis. Patients who are stigmatized with the diagnosis of mental disturbance too frequently do not receive adequate diagnostic attention. Doctor Wolfsohn touched but did not enlarge upon the subject of the theory of a physical basis for psychoses in general. During the present century the list of so-called functional nervous conditions has diminished, due to the recognition of the organic bases of their existence. Paresis, Parkinson's disease, chorea, tics, torsion spasm, paramyoclonus and dystonia are now recognized as organic diseases. Of the psychoses it may be stated that dementia praecox, manic-depressive insanity, the paranoid and hysteroid psychoses, are about the only forms not definitely attributable to organic disease. Further advances in our knowledge of the life activities of and the disturbances affecting the nerve cell in terms of biochemistry and physics will further reduce the list of "functional" nervous diseases. This knowledge will also facilitate our intelligent treatment of these conditions.

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DOCTOR WOLFSON (Closing).—I want to thank Doctors Inman and Ingham for their discussions of my paper, which make me feel that I have merely brought again to the attention of the members of this section a subject that needs to be further threshed out.

If we accept mental patients and treat them as such, not putting our best efforts toward bringing out any factor which might tend to even exaggerate the mental symptoms or displace the nervous system and make it more susceptible to any noxious process going on in the body, we are not advancing at the same rate as those who are treating patients in general medicine and surgery.

My spoken admonition in the treatment of mental patients is: "Go the limit of medical and laboratory examinations before treating the patient himself from the mental angle."

HEMOTHORAX AND HEMOPERICARDIUM*

By FRANK S. DOLLEY, M. D.
Los Angeles

DISCUSSION by Philip Stephens, M. D., Los Angeles;
A. Lincoln Brown, M. D., San Francisco.

A SMALL penetrating wound of the chest wall with a comparatively trivial lung injury may, by the outpouring of blood and air into the free pleural cavity, result in pneumothorax, hemorrhage, and early death. A very small stab wound of the chest wall, entering the lung narrowly, may result in tension pneumothorax with so great lung collapse and mediastinal displacement that death soon occurs. The kind of trauma in thoracic injuries plays a secondary rôle; it is the mechanical results of the injuries that are important.

The treatment of hemothorax falls, naturally, in two phases: primary, or treatment immediately following injury; and secondary, or treatment forty-eight hours or longer following injury.

IMMEDIATE TREATMENT

Hemothorax, when the patient is first brought under the care of the examining physician, unquestionably calls for careful consideration of the various accompanying complications, one or more of which invariably are present. The more experience the doctor has had in the care of severe injuries of the chest the more able is he to evaluate the various signs and symptoms present. It is very important to remember that a concealed hemorrhage into the pleura may be masked until too late by other more evident symptoms. It is essential, therefore, that there should be called in immediate consideration, besides hemorrhage into the pleural space, commotio thoracis, compressio thoracis and pneumothorax, and the influence of these accompanying conditions, if they be present, upon the general condition of the patient in so far as it is possible to accurately correlate them. Without such an evaluation the proper immediate treatment of an existing hemothorax may lead to very grave complications.

COMPLICATIONS OF EXISTING HEMOTHORAX

Let us, then, for the moment consider these possibly accompanying complications. It is because the three conditions mentioned above may in their clinical aspects very closely resemble or effectually hide an extensive hemothorax that their symptoms need at this time to be considered.

Commotio Thoracis.—Commotio thoracis in its symptoms is so much like commotio cerebri that it is by no means certain that the same nervous mechanism is not responsible. Following a blunt injury of the chest the symptoms may so closely resemble those of exsanguination as to make differentiation difficult. The injured person sinks suddenly to the ground senseless, the skin is pale and cool, pulse scarcely palpable and is strikingly slow and irregular, breathing is superficial and of

varying frequency. Often there is evident anemia, tremor, hippocratic facies, and air hunger. It is a condition that may effectually disguise an intrapleural hemorrhage that is rapidly leading to death.

In *compressio thoracis*, on the other hand, the skin is blue and livid due to the compression of the great veins within the chest. Because it is rare not to have other intrathoracic injuries, the extreme lividity of the skin, which is due to actual hemorrhage from the capillaries, may so treacherously disguise the degree of exsanguination from concealed hemorrhage that death may occur before the amount of bleeding is actually appreciated.

Pneumothorax from Torn Bronchi.—If the bleeding is of pulmonary origin, air from the torn bronchi is often present within the pleural cavity with the blood. The air rising above the blood in the pleural cavity gives hyperresonance to percussion well back to the midaxillary region in a patient lying supine. An extensive pneumothorax combined with commotio thoracis, therefore, may effectually conceal an intrathoracic hemorrhage that is rapidly leading to exsanguination. It is to be remembered also that a tension pneumothorax may exist with pressure so great that the percussion note may vary little from the normal note or may even be flat. Often exploration with a needle is life-saving if blood or air is suspected.

Patients with severe chest injuries are almost invariably suffering from commotio thoracis to a greater or lesser degree. It is impossible to judge at first whether thoracic shock or hemorrhage is the more responsible. The patients are usually in considerable pain, are much agitated, and very apprehensive. The administration of morphin hypodermically in full doses until the patient's respirations have dropped to below thirty is often of dramatic benefit to the patient and of great aid in the differential diagnosis for the doctor. The symptoms of thoracic shock, so closely resembling those of extensive hemorrhage, as a rule are markedly lessened while those due to hemorrhage are little affected. If there is thoracic shock, the patient becomes more quiet, there is less disturbance of intrathoracic organs, and respiration decreases in depth and frequency. The evidences of extensive hemorrhage are, then, much more easily recognized. The coughing reflex is remarkably lessened, the color more nearly approaches normal, provided the hemorrhage is not great. Do not allow the prominence of abdominal symptoms, of chest pain, of cerebral injuries and fractured extremities to deflect from the consideration of an extensive concealed intrapleural hemorrhage. When in any doubt as to the presence of blood or air in the pleural space, aspirate.

When, however, the various conditions are considered and their places in the clinical picture recognized, the importance of the rôle of the hemorrhage can be more clearly appreciated. One may lay down as a working rule that the important thing for consideration is not the amount of

* Read before the Industrial Medicine and Surgery Section of the California Medical Association at the sixtieth annual session, San Francisco, April 27-30, 1931.

blood present in the pleural cavity at the time of the initial examination, but the rapidity with which the amount increases.

HEMOTHORAX

The extent of the hemothorax is determined as accurately as possible and an hourly check on this amount is kept, provided evidences of hemorrhage are definite. Neither the absence nor presence of blood by mouth nor its amount is a reliable criterion of lung injury or of the amount of bleeding into the pleural cavity. It is the rule, following intrapleural hemorrhage, for the pleura to respond by an outpouring of serum. During the first few hours, therefore, this serous effusion may be sufficient to perceptibly increase the amount of fluid within the chest. Allowance should be made for this. This increase may be as much as 10 per cent. If, however, there is a continual rise in the level of the fluid, if respirations are becoming more rapid, if mediastinal pressure symptoms are developing and the general signs of bleeding are continuing, there should be no further delay. An intrathoracic exploration in the attempt to find the bleeding point should be done at once.

As a rule it may be said that hemorrhage from injury to the lung itself rarely requires surgical intervention since the blood pressure in the lesser circulation is approximately one-sixth as high as in the general circulation. The arrest of the hemorrhage, therefore, is almost always spontaneous. If, however, a vessel in the neighborhood of the hilum or the pericardio-phrenic vessels on the lateral wall of the mediastinum or the internal mammary or the intercostals are injured, bleeding is continuous to exsanguination unless the injured vessel is exposed and ligated. It is during the first few hours following injury that the patient should be watched constantly, not through telephone bulletins from the nurse in charge, but by actual examination by the doctor, who retains clearly in his mind the picture of the patient when first seen by him, for it is the change for the worse in the patient already seen that is of life-saving importance in deciding whether or not immediate exploration should be done. Pain in the shoulder region, increasing dyspnea, and collapse almost invariably mean suddenly increasing hemothorax. The nurse in attendance should be instructed to report the onset of such symptoms at once.

Often the location of a penetrating wound may strongly suggest the bleeding as coming from an internal mammary or an intercostal vessel. These vessels are seldom injured without injury to the pleura. The point of exploration, then, may be directly over the point of entrance of the penetrating instrument. If the bleeding is found to be from an intercostal vessel, always resect a portion of the rib overlying so that satisfactory exposure may be obtained. Intercostal bleeding is particularly dangerous posteriorly. If the internal mammary is suspected, make the incision parallel with the rib to the sternum. If the bleeding point is not safely exposed, tie the vessels in the intercostal spaces above and below. It is not safe to

depend on packing alone, for the hemorrhage may stop for ten days and then begin again. If, however, there is little to guide one in regard to the location of the bleeding vessel, a wide incision should be made in the region of the sixth or seventh rib. I have found it much more satisfactory in the exploration and subsequent closure of the chest wall to resect a rib through the extent of the incision and enter the chest through the rib bed. An intercostal incision may be made, however. The lung collapses immediately following opening of the chest. Usually the bleeding vessel is at once seen. Positive intrabronchial pressure is maintained by the anesthetist immediately the bleeding point is found. It is amazing often how quickly the general condition of a patient improves with lung reexpansion and relief of mediastinal compression. The wound in the chest wall should be closed tightly without drainage. If a hole in the lung is discovered, it should be repaired; ragged edges of fractured ribs trimmed down; spicules of bone and torn tissue removed. If it is not deemed necessary to maintain the lung collapsed on the affected side while a repaired tear in the lung is healing, then after closure of the chest wall, air should be at once aspirated in order by pleural adherence to reduce the danger of empyema as much as possible and, in the event of its developing, the extent of the pleura involved. Hedblom found that the incidence of empyema is much greater when a pneumothorax is left after an intrathoracic operation than when it is aspirated. Whether exploration is decided upon or not, absolute rest, control of cough and agitation by means of full doses of morphin and constant observation are essential.

LATE TREATMENT

With the immediate danger of exsanguination past, what should be the ultimate treatment as regards the blood in the pleural cavity itself? Allen, and later Martin, recommend that penetrating wounds of the chest wall that do not suck should be left open and the patient turned so that the blood present in the pleural cavity may slowly leak out into the sterile dressings. If no small external opening exists, however, what then?

Before reaching a decision as regards its removal, we ask ourselves: How extensive is the hemothorax? Is its presence aiding in the control of hemorrhage within the lung itself? Is there a low-grade infection present within it or the lung, or does there seem likely to be? If left alone will the blood-clots within the chest organize, cause extensive adhesions between the visceral and parietal pleurae and result in progressive thoracic deformity?

It is held by many that the presence of a massive pleural effusion helps to tampon the bleeding point and, therefore, is an efficient aid in controlling intrathoracic hemorrhage. Certainly, in the presence of a bleeding vessel of considerable size in the chest wall, at the hilum, or on the mediastinal wall, the presence of this fluid can have little effect in controlling hemorrhage. Bleeding is progressive to death unless the bleeding

vessel is ligated. In bleeding from the lung, on the other hand, it is very doubtful whether the presence of blood, even in large amounts, has an effect upon its control since with respiration, the pressure, even on the injured side, varies constantly with inspiration and expiration. It would seem to the writer, therefore, that after the first forty-eight hours, removal of the blood, even though the quantity may be large, has little effect on subsequent bleeding. The advisability of the replacement of blood with air still remains uncertain. The majority of men today feel that the removal of as much as possible of the blood present at one sitting is advisable rather than several aspirations with the accompanying increased danger of infection from without. The introduction of air to partially replace the fluid removed and to prevent too rapid reexpansion of the lung beneath seems a logical and practical measure. We do know, however, that after pneumothorax of even a few days' duration, the formation of permanent adhesions between the two layers of pleurae is the rule and, since in the treatment of hemothorax all measures that contribute to pleural adhesions and possible subsequent chest deformity should be avoided, the writer feels that the replacement of fluid by air is less advisable than the aspiration of fluid in two stages, provided the amount present is great.

Heuer, Pratt, and Mason found that as a rule, following a hemothorax, even in small amounts, pleural adhesions obliterate the costophrenic angle and these adhesions continue many months or years, this whether the blood is removed or not. It has long been believed that blood-clots left undisturbed within the pleural cavity eventually organize, become adherent to the underlying pleura and result eventually, by the contraction of the pleura, in marked deformity of the chest wall together with subjective symptoms that are followed by varying degrees of incapacitation. Surely in a certain per cent of cases this is true. It is very questionable, however, if this development is usual. Garré has shown experimentally that whole blood removed from a dog and injected into its own pleural cavity resulted in no pleural irritation except for the moderate outpouring of serum.

Since, however, it is the rule following a hemothorax for an outpouring of serum from the pleurae to occur almost at once, it would seem that there must be some local pleural reaction which in a certain percentage of cases might result eventually in extensive pleural union. But though this pleural synthesis be extensive the writer feels it illogical to suppose that pleural obliteration in itself can be responsible for the tragic clinical picture that we too frequently see as the late result following an extensive hemothorax, the result of chest trauma. This picture, quickly drawn, is thus shown. The shoulder on the injured side is several inches lower and more posterior than the contralateral one. The affected side of the chest is flat, shrunken, immobile, the ribs are shingled closely one over the other, there is marked scoliosis with convexity to the affected side. Medi-

astinal structures may be pulled entirely into the involved hemithorax, the diaphragm is very high and immobile. The patient is emaciated, unable to work, and is expectorating ounces of pus daily. Extensive pleural union and subsequent pleural contraction has indeed contributed largely to this sad condition. The initial hemothorax left undisturbed surely played an important rôle. Yet it is illogical to believe that these factors alone are responsible. If so, why is there not extensive chest deformity and incapacitation after prolonged artificial pneumothorax treatment when the lung is allowed to reexpand and pleural union is complete and permanent? There is an additional factor, then, that initiates the dreadful chain of complications. That factor is infection. Infection of the hemothorax occurring when the pleural leaves are widely separated or when the pleural leaves covered by fibrinous exudate are closely in apposition, or infection in the lung beneath with pleural irritation and extensive organization with progressive contraction. If there is extensive injury of the lung tissues beneath with evidence of pneumonitis and bronchopneumonia the danger of secondary infection into the blood within the pleural cavity is a very real one. Regularly with hemothorax the temperature goes to 100 degrees or 101 degrees daily. This we expect. The patient is not toxic, however. Within ten days the temperature rise should be slowly declining. If this decline does not occur or if actually his condition is becoming worse, intrapulmonary inflammation or an infection into the pleural collection of blood, or both, are to be strongly suspected. Often the temperature drops promptly to normal after the aspiration of the intrapleural blood. If empyema develops, the cavity is drained and little deformity is expected, provided the lung beneath recovers. If, however, a low-grade infection within the pleural cavity follows lung inflammation, the pleurae react strongly to this and extensive pleural synthesis is very liable to occur. Chronic progressive bronchopulmonary suppuration plays so often a fatal rôle in these unfortunate cases. The sequence of pathologic events is often as follows: chest injury; lung tear, hemothorax; pneumonitis or bronchopneumonia; extension of infection to pleura with resultant marked stimulation to the pleural surfaces and progressive organization of blood-clots; solid pleural union and progressive retraction of scar tissues, both of the pleurae themselves and bands extending thickly into the lung; gradual widening of infected bronchi by scar tissue contraction; bronchiectasis and chronic progressive bronchopulmonary inflammation; lung parenchymal contraction and pleural contraction; unilateral chest immobilization; rib overlapping and scoliosis.

If, then, one apprehends from the character of the injury, the degree of trauma and the evidences of underlying lung inflammation, that infection exists in the neighboring structures or is likely to develop, aspiration of the bloody fluid as completely as possible and as soon as possible consistent with the patient's safety is, in the writer's opinion, imperatively indicated. If it be true that

the presence of blood-clots in the pleural cavity is not in itself particularly harmful without infection and there is little to suggest the danger of infection, it would seem unnecessarily radical to open the chest for removal of blood-clots as is advised by some men.

In a word, therefore, if immediately following the injury there is a progressive increase in the amount of blood within the pleural cavity and the patient's condition is becoming alarming, thoracic exploration should be at once done. If there is no marked increase in the size of the hemothorax and the injured patient is not worse, absolute bed rest, morphin in full doses, and attention to shock are indicated and are usually sufficient as far as bleeding is concerned. Aspiration at this time is not necessary. After two to four days, when the immediate effects of the injury are greatly lessened, aspiration should be done if there is a massive collection of fluid as one would remove such a collection were it serous. There would seem to be little danger by so doing of causing renewed bleeding. Fluid may be partially replaced by air, though in the writer's opinion there is less danger of permanent adherence of the pleurae if this is not done. Aspiration should be done if there are definite signs of an underlying inflammation in the lung. Aspiration should be done if on aspiration a positive bacterial culture is obtained from the fluid itself. If, however, there is but a small quantity of blood present, as determined by physical signs, and there is no evidence of lung inflammation and the patient's general condition is steadily improving, there seems little to indicate that extensive permanent union between the two layers of pleura will follow.

Indiscriminate operative measures unquestionably increase the mortality in chest injuries, but with evidence of internal injury with continuous bleeding or with badly comminuted or displaced ribs, or of lung injury, open the chest widely through a rib bed or an intercostal incision, remove blood-clots, repair lung, remove fragments of rib or raw broken edges, tie vessels and close chest wall tightly. Then remove the pneumothorax by aspiration.

HEMOPERICARDIUM

Normally there are only a few cubic centimeters of serum in the capillary-like space between the heart and the pericardium. The latter is so elastic, however, that 50 to 100 cubic centimeters of fluid may accumulate without giving symptoms. In larger amounts the heart is mechanically interfered with. When intrapericardial tension from hemorrhage becomes very great, death occurs. Morgagni first described this possibility and to it Rose gave the name "heart tamponade." He believed that the heart became so compressed that ventricular filling could not occur. This has been disproved. The idea of heart tamponade is an erroneous one. There lie in the pericardium portions of the great vessels—aorta, pulmonary artery and veins and the superior and inferior vena cavae. The veins are thin walled and the blood within is under little pressure. As

blood accumulates within the pericardium the thin walled cavae are gradually narrowed, the auricles gradually collapsed and diastolic filling is thus seriously interfered with or prevented. There is a rise in the pressure in the body veins and a fall in the pressure of the arteries. It is a condition actually of heart strangulation rather than tamponade. The more acute the hemorrhage the more stormy is the clinical picture and the less the hemorrhage required to cause strangulation.

It is difficult to give a complete and satisfactory symptomatology of heart strangulation or tamponade. It is often exceedingly difficult to differentiate it from cerebral or thoracic motor reflex disturbance—commotio cerebri or commotio thoracis. The difficulty is also increased by the severity of the frequently accompanying injuries, particularly those of the diaphragm, abdominal organs and the presence of pneumothorax. The history is of great importance. If the patient immediately after the injury collapsed, if his face was dead white and his pulse scarcely perceptible, he is probably suffering from shock either cerebral, thoracic or both. But if his condition at first was fairly good and then he gradually developed an increasing weakness of the pulse; if his nose and forehead became cold and his lips blue and then cyanosis of the face and neck developed; if the veins of his neck became engorged and then distinctly pulsated; if his breathing at first sighing and superficial steadily became more labored and finally stertorous, and if unconsciousness supervenes or deepens, then heart strangulation is very probable. If then the precordial dullness is found to be greatly enlarged and the heart sounds are either entirely absent or very distant the diagnosis is almost certain. When the heart strangulation has reached this degree, death occurs early unless relief is brought about by pericardial aspiration or pericardiectomy. Usually the patient complains of extreme pericardial pain; of a feeling of heart compression especially during inspiration. A marked feeling of anxiety is usually one of the characteristic signs; occasionally neuralgic pains down the left arm. Hiccough from phrenic nerve or diaphragmatic irritation is by no means rare. It is interesting that in marked heart strangulation the left radial pulse is often missing.

When an extensive hemopericardium is recognized or suspected, aspiration should be done. The principal thing is to avoid injury to the heart. In general, aspiration immediately to the left or to the right of the sternum is to be warned against. Here the heart can be easily injured and the internal mammary vessels punctured. If one must go in lateral to the sternum, go in two or three cm. from the sternal edge in the fifth interspace. Aspiration is frequently done just outside the apex beat, if no apex beat is discernible just within the lateral border of cardiac dullness to the left of the nipple line. The classical place for aspiration, however, is in the angle where the seventh rib meets the xiphoid cartilage. This site is all too rarely employed. Here as a matter of fact are the most favorable conditions for reaching fluid without injury to the surrounding struc-

tures. Here is the lowest point of the pericardium and where the contents most easily can flow out. The procedure, under local anesthesia, should be done quietly and carefully with the patient lying in bed. The patient should be slowly and carefully raised to the half erect position, the arms down to the sides. A short, heavy pillow under the shoulders, head lying over this in extension. One should use with light, careful and sure hand a simple, plain twenty gauge needle or still better a very fine trochar. The trochar is slowly pushed in towards the direction of the pericardium. As soon as the fluid is reached one feels the difference in the resistance, the steel rod of the trochar is removed and the fluid empties usually under some pressure. If no fluid is obtained one slowly moves the needle back and forth, or turns it to reach a better position. Under all conditions avoid injury to the surface of the heart. Even a slight scratch in the region of the apex of the heart may result in considerable bleeding. If this occurs, after withdrawal of the needle, heart tamponade may develop even more markedly than before aspiration was done. It is well to have salt solution handy and when fluid begins to flow through the needle to rinse out the pericardial cavity. The constant action of the heart churns the blood continuously. Theoretically, marked union between the heart and pericardium could occur, probably, however, when infection does not occur the fibrin is gradually absorbed and the heart remains freely movable within its enclosing sac. In a later report the results of animal experimentation on this problem will be published.

If the patient is relieved after aspiration of the blood and apparently blood does not recollect, nothing further needs to be done. In the event that it is recollecting slowly, aspiration may be repeated. If, however, there is a rapid reaccumulation it is much safer to expose the heart freely by anterior incision prepared to find and tie the bleeding point.

There are few surgical measures that are so dramatic in their effect as the aspiration of pericardial blood. Venous pulsation ceases, venous engorgement disappears, respirations become regular and easy, cyanosis and dyspnea disappear and the patient often becomes conscious almost at once, looks about him, asks a question or two and drops off into deep, quiet slumber.

It is well to remember in aspiration of a hemopericardium if there is a sudden increase of blood indicating injury to the heart and hemorrhage, that it is a fundamental error to remove the needle since when that is done, blood will accumulate in the pericardium, causing heart strangulation and death in a few minutes. It is rare for the patient to die suddenly during pericardial aspiration. If death does occur, then the needle has probably hit a heart nerve center or air embolus has occurred. These misfortunes have been reported especially during aspiration in the fourth and fifth interspaces. The needle in aspiration of the pericardium at the sterno-costal angle should be directed directly upwards and inwards at an angle of about forty-five degrees to the body.

It has been my experience that extensive hemorrhage into the pericardium is seldom considered. Autopsy records following injuries of the chest show this not rarely as the cause of death. In any case of severe thoracic injury it should be a routine procedure to eliminate this possibility. Without making it a routine measure it will surely sooner or later be overlooked.

727 West Seventh Street.

DISCUSSION

PHILIP STEPHENS, M. D. (1136 West Sixth Street, Los Angeles).—Doctor Dolley has presented very clearly and ably a subject which is becoming more important as the number of traffic and industrial accidents increase. His opening statement, that a trivial lung and chest injury may result in death if not recognized and given proper attention should put us on our guard with our accident patients and make us pay more attention to fractured ribs and chest injuries. Make us less anxious to rush our patients under an anesthetic for reduction of fractures which if properly splinted can wait twenty-four or forty-eight hours without too great jeopardy of the final healing process.

His conservative, watchful policy should give us some solace during the first forty-eight hours when we are dealing with a severely injured person who commonly has associated with his fractures and head injuries, such a degree of shock, hemorrhage and the possibility of intra-abdominal injury that one can do little else but watch and deal with the complications as they arise. It is in these cases of multiple injuries, where we are required to differentiate between hemorrhage and shock, ruptured and traumatized viscera, skull fracture and cerebral contusion that a clear cut paper of this type is of aid in helping us give our patients enough care to safeguard his life and not jeopardize it by surgical procedure.

✽

A. LINCOLN BROWN, M. D. (490 Post Street, San Francisco).—Hemothorax certainly, and hemopericardium occasionally are conditions which are usually traumatic in nature and therefore frequently come under the care of the general practitioner. It is thus essential for all to have a thorough understanding of these conditions, and particularly of their physiology and pathology. This, Doctor Dolley has made available in his exposition of the subject.

The question of whether intrapleural hemorrhage should or should not be removed is still a moot subject. Our decision is of course made easier when either the fluid collected produces sufficient pressure symptoms to dictate removal or when continued hemorrhage determines operative intervention for its control. But in the majority of instances we are faced merely with the problem of what to do with the fluid—a hemothorax per se. Doctor Dolley has covered the pros and cons regarding its removal and has discussed whether or not we should replace with air. I personally tend to favor the removal of the fluid, particularly for the following reasons, which I feel outweigh the disadvantages of this procedure. One, fluid left in the pleural space, even if ultimately completely absorbed, is prone to leave the patient with a fixation of the lung in an abnormal position and this is of course often followed by a disturbing chain of subjective symptoms for the patient, including particularly pleural pain and symptoms due to distortion of the mediastinal viscera. Two, blood left to absorb in the pleural space produces not only great thickening of the pleurae, but tends to form fibrin clots which collect in the costo-phrenic sulcus, and require subsequent removal by thoracotomy. If the hemothorax is to be aspirated, I believe this should be done early in the treatment, usually in the second twenty-four hours and that this aspiration should be repeated daily if necessary, so that the pleural space is kept empty. Otherwise I feel that the advantages sought by aspiration are not attained.

As I have suggested previously,[†] it is entirely feasible to collect the blood removed and use it for autotransfusion. This adjunct to our therapy is often of exceptional value in those cases where there has been any real amount of extravasation of blood.

DOCTOR DOLLEY (Closing).—Just a thought important enough to be worth reiteration. In a patient who has received a severe chest injury there are no physical signs that surely eliminate extensive bleeding between the pleural leaves or pneumothorax under great pressure, or both. When any doubt exists, use aspirating needle. If symptoms indicate that a hemothorax is steadily increasing in a dangerously injured patient do not wait until he is moribund before attempting to find and ligate the bleeding vessel.

DISLOCATION OF THE ASTRAGALUS*

ASSOCIATED WITH FRACTURE OF THE CUBOID
AND FIBULA FOLLOWING SIMPLE INJURY

REPORT OF CASE

By S. L. HAAS, M. D.
San Francisco

DISCUSSION by E. W. Cleary, M. D., San Francisco;
H. W. Chappel, M. D., Los Angeles; Rodney F. Atsatt,
M. D., Santa Barbara.

CONSIDERABLE confusion has arisen regarding the nomenclature of the dislocations of the tarsal bones. It is therefore impossible to get any absolute statistics regarding the frequency of the various forms of dislocations. However, it is accepted that certain types are relatively infrequent as, for instance, true dislocation at the astragaloscaphoid joint. Milch,¹ in his paper, reported that up to 1929 there were only twelve cases of complete luxation at the astragaloscaphoid articulation and about 139 cases of dislocation at the subtarsal joint. The distinction between dislocation at the astragaloscaphoid and subastragaloid joint is a subject over which there is some dispute. It is rather difficult to understand how the head of the astragalus could be displaced entirely from its articulation with the scaphoid without at least some change in the subastragaloid joint, especially when the head is displaced inward or outward. Likewise, when there is a dislocation in the subastragaloid joint the head of the astragalus will luxate out of its articulation with the scaphoid bone.

MECHANISM OF PRODUCTION

The mechanism of the production of this type of dislocation calls for some speculation regarding the exact factors that come into play. In the first place, the foot must be in an abnormal position at the time of the unusual force. The degree of force necessary to cause the dislocation will vary under certain conditions, being much less when the individual does not anticipate the strain. Thus, a man may jump from a height of ten feet without incurring a dislocation, even if he does not land squarely. On the other hand, if he should step off from a height of two feet un-

expectedly, and his protective muscular apparatus has not time to function, a dislocation may take place.

It is possible that poor development of the ligamentous structure or abnormal contour of the joints may have some influence over the production of these dislocations. Although it is claimed that the ligaments of the astragaloscaphoid joint are weak, one cannot help thinking otherwise when attempting to remove the head of the astragalus at operation. Furthermore, the overlying deltoid ligament and the calcaneoscaphoid lend a considerable support to the astragaloscaphoid joint. The scaphoid, being free from insertion of tendons, is not subject to any abnormal pull. The rarity of dislocation further substantiates the opinion that the joint must be well protected.

The position that the head of the astragalus takes following a dislocation varies with the position of the foot at the time of the injury. If the foot is supinated and in plantar flexion the dislocation will be outward and upward; while if it is supinated and in dorsal flexion the head of the astragalus will be outward and downward. If the foot is in pronation the dislocation will be inward. The outward displacement is more frequent than the inward dislocation.

Diagnosis of dislocation of the astragalus is usually quite difficult without a roentgenogram on account of the swelling that occurs within a short time of the accident. If the swelling has not begun, the displaced head of the astragalus may be palpated or the defect proximal to the scaphoid may be made out. A helpful sign is the shortening of distance from the internal malleolus to the tip of the first toe in conjunction with a valgus or varus deformity of the foot.

TREATMENT

The treatment is by closed manipulation of the foot, the patient being given an anesthetic. The exact procedure varies with the type of displacement. Traction is applied in the long axis of the foot and the foot is then abducted to restore the normal length of the inner border of the foot. The foot is placed in plantar flexion when the head of the astragalus is displaced downward and in dorsal flexion when the head of the astragalus is displaced upward. Pressure is made on the head in the direction of the position of its normal articulation. Inversion or eversion may be necessary in some cases to complete the reduction.

After the reduction is completed a plaster of paris dressing is applied, holding the foot in as near the normal position as possible, particular effort being made to restore the longitudinal arch. An x-ray should be taken immediately to be certain that luxation did not recur during the application of the plaster. Gradual weight-bearing with crutches is then begun, after three weeks, and routine physiotherapy instituted.

If closed reduction is not possible it is necessary to resort to open operation. Interposition of ligamentous or tendinous structures may prevent reposition and adhesion in old delayed cases. Some surgeons have advised an arthrodesis of the astragaloscaphoid or subastragaloid joints. This

[†] Brown, A. L.: Autotransfusion: Use of Blood from Hemothorax, J. A. M. A., 96:1223-1225 (April 11), 1931.

* Read before the Industrial Medicine and Surgery Section of the California Medical Association at the sixtieth annual session, San Francisco, April 27-30, 1931.

may be indicated at a later date if there is a painful arthritis. Astragalectomy is seldom necessary, although it has been suggested.

The prognosis for good function after reduction is favorable, although there may be some restriction in the subastragaloid of the mediotarsal joints.

The complications following dislocation may be necrosis of the skin from pressure of the displaced head if reduction is delayed too long. Gangrene of the foot may occur if the circulation is impaired by pressure or injury to the blood supply. Arthritis of the tarsal joint may cause some trouble after reduction.

REPORT OF CASE

The following report is of a patient sixty-two years old who tripped on the metal guard of the top step of a street car, the left foot sliding over the edge and coming down forcibly on the step below, with the foot in pronated position.

The patient experienced immediate extreme pain and noticed that the foot was turned markedly outward. She had to be helped down to the street and was taken immediately to the Emergency Hospital, where a padded moulded splint was applied. Examination about one hour after the injury showed the foot markedly swollen, all the anatomical markings of the ankle joint being obliterated. On palpation there was marked induration of the tissues about the entire tarsal region, so that it was impossible to make out any bony prominences. In addition, the severe pain and spasm prevented any manipulation of the foot. It was impossible to make an exact diagnosis without a roentgenogram of the involved region. The next day the patient was sent for an x-ray, which showed a dislocation at the astragaloscaphoid joint, the head of the astragalus being displaced in the infrequent position, namely, inward and downward. There was an associated comminuted fracture of the cuboid and the lower end of the fibula (Fig. 1). The position of the tibioastragaloid joint was normal, as was the calcaneocuboid joint. There was at least, a rotation of the astragalus on the cuboid and a medial shift of the astragalus in the subastragaloid joint. The patient was given an anesthetic, and while traction and abduction was applied to the toes and the distal tarsal region, pressure was made on the head of the displaced astragalus in the direction of the normal position of the joint. At the same time the front portion of the foot was plantar flexed. The head of the astragalus was gradually moved upward and outward until it assumed a position dorsal to the normal position. Pressure was then made down on the head and it gradually slipped into its normal position. A plaster of paris dressing was applied, after which the patient was sent for an x-ray examination. The film showed the head of the astragalus displaced dorsally, but in contact with the scaphoid. The plaster was immediately removed and, as the patient was still under the effects of the anesthetic, pressure downward on the head of the astragalus completed the reduction. The position was verified by the examination of the new films (Fig. 2). Because of the accompanying fractures the plaster was not removed

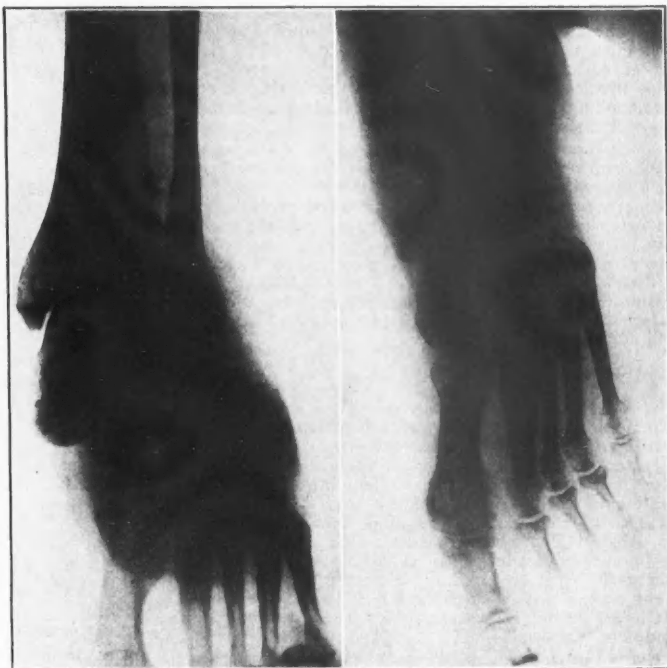


Fig. 1.—Dislocation of astragalus inward and downward. Fracture of the fibula. The fracture of the cuboid cannot be distinguished in the print. Anterior view before reduction.

Fig. 2.—Dislocation of the astragalus two months after reduction. There is a marked disuse atrophy.

until the end of six weeks. Adhesive plaster was applied with a pad similar to that used in sprained joints under the longitudinal arch. A leather arch support was given later. The swelling of the leg persisted for about five months and this was treated by an elastic stocking.

The patient was examined April 24, 1931. She has a perfect anatomical form to the ankle and foot. There is a sensitive area over the underside of the cuboid bone. The ankle motion is normal. There is about 50 per cent of the normal range of motion in the subastragaloid and mediotarsal joints. The patient experiences no trouble aside from the occasional slight discomfort in the region of the anterior arch, which is relieved by a metatarsal pad.

CONCLUSION

Dislocation of the astragalus should be treated by an immediate attempt at closed manipulation. If this is unsuccessful, an open operation should be performed. In the case reported there was an associated fracture of the cuboid and fibula which prolonged the convalescence. This severe injury followed a relatively slight trauma.

450 Sutter Street.

REFERENCE

1. Milch, H.: Astragaloscaphoid Dislocation, *Ann. of Surg.*, 89:429, 1929.

DISCUSSION

E. W. CLEARY, M.D. (490 Post Street, San Francisco).—In twenty years I have treated only two cases of dislocation of the astragalus. Both were seen between twenty-four and thirty-six hours after injury. Both were inward dislocations; attempts at closed reduction failed in both cases. One, a youth of seventeen, sustained a complete inward dislocation while sliding for a base in a ball game. At operation the

astragalus was found completely avulsed from all its ligamentous attachments. Astragalectomy was done lest the bone, having been entirely deprived of circulation, should disintegrate if simply reduced. This case illustrates what Doctor Haas has said. A relatively slight degree of violence produced an extreme type of dislocation.

The second patient, a middle-aged man, fell twenty feet from a lumber flume. The astragalar head was torn loose from its ligamentous attachments and the entire bone rotated inward about 90 degrees around its vertical axis. When I saw the patient the second day after injury the skin and underlying tissues over the projecting astragalar head were frankly necrotic so that operation was precarious because of a possibly contaminated field. The bone was reduced through external incision, and the patient made an uneventful and complete recovery.

✽

H. W. CHAPPEL, M. D. (1136 West Sixth Street, Los Angeles).—Doctor Haas has given a very helpful explanation of a troublesome injury to the foot. A careful survey of the literature will prove that of the reported cases of dislocation of the astragalus, those occurring at the astragaloscaphoid joint are very rare. Following the mechanism of the production of a dislocation at the astragaloscaphoid joint, as presented by Doctor Haas, an immediate and accurate diagnosis can be made. This is of utmost importance where the time required for a roentgenogram would allow an amount of swelling which would prevent an early reduction, so essential for the restoration of complete function.

Every effort should be made to reduce the dislocation by the closed method, and this failing, an open reduction should be done at once. The astragalus, when it is displaced, may become so completely isolated from nutritive connections as to be in danger of necrosis. This has been a strong argument in favor of astragalectomy, which has varied widely in its end results. Of the cases reported, far better functional results have been obtained from reduction than from removal of the astragalus.

I have observed but one case of dislocation of the astragaloscaphoid joint. The injury occurred during an automobile accident. The head of the astragalus was completely displaced inward and forward from the scaphoid. By traction, dorsal flexion, and abduction, a reduction was obtained and maintained by plaster of paris. Recovery was complete.

✽

RODNEY F. ATSATT, M. D., (1421 State Street, Santa Barbara).—Doctor Haas has presented a rather rare type of tarsal dislocation to us today. The injury causing this dislocation is usually of a much more severe type than that represented by this case. As he states, the exact diagnosis is difficult without an x-ray because of the swelling with obliteration of usual landmarks and because of the distinctly abnormal relations incurred. However, when such a foot is presented to one there can be no question of the existence of some type of dislocation, for there is a very marked distortion of normal outlines.

I have had two cases of this unusual dislocation, both inward displacements of the tarsus on the astragalus. One was a man who was injured by the fall of a horse and had his ankle caught under the flank. The second was a seaman who jumped from a considerable height to a steel deck and landed with the foot in inversion on a piece of cable. In the former there was no associated fracture, making it a rare case indeed. In the second there was a fracture of the fibula.

My reduction in these cases differed somewhat from that described by Doctor Haas in that I reduced the subastragaloid dislocation primarily, then followed by a reduction of the astragaloscaphoid luxation. The principle, however, was identical—a reversal of the causative forces executed under manual traction.

Doctor Haas is to be congratulated on this splendid result he has reported.

CARDIOVASCULAR TESTS IN THE ADOLESCENT GIRL—AS AN INDEX TO CARDIAC AND PHYSICAL EFFICIENCY*

By KATHERINE M. CLOSE, M. D.
Los Angeles

DISCUSSION by John C. Ruddock, M. D., Los Angeles;
William Dock, M. D., San Francisco.

THE program of the adolescent girl in our educational institutions of today is a very strenuous one. Despite the popular belief that education is not what it used to be, the effort to keep pace with the present-day civilization calls for a greater physiologic reserve than is enjoyed by every adolescent girl.

Having seen many girls break under the stress of the system in vogue, the writer thought some data on the subject would be of interest.

The data, which have been collected and from which these reports are made, are taken from two hundred and sixty-five girls who are enrolled in one of the private schools of Los Angeles—The Immaculate Heart Convent. I have taken the records of these girls only because they were of the same social standing and gave evidence of coming from good substantial homes, and should give the best physical reactions. I recently examined a group of industrial workers and found them generally in a very poor physical condition; a very great contrast to the girls from the convent, who had better surroundings and a chance to enjoy life.

EXAMINATION PROCEDURES

The examination consisted of general inspection as to teeth, tonsils, nutrition, etc. The cardiovascular test consisted of pulse and blood pressure records with the patient sitting. The girl was instructed to hop on one foot fifty times and the pulse and blood pressure were recorded immediately after the exercise and at two-minute intervals until the pulse and blood pressure had returned to the same level as before the exercise.

There is a question as to the "hopping test" being the best one. Some advise stair climbing, stepping onto a chair, etc. All of which would be very good. I have used this method of hopping

*Read before the General Medicine Section of the California Medical Association at the sixteenth annual session, San Francisco, April 27-30, 1931.

TABLE 1.—Showing the Averages of the 265 Girls Examined.

	Average	Before Exercise	After Exercise	2 Min. After Exercise
Age	16.49 yrs.			
Weight	122.13 lbs.			
Height	63.49 in.			
Blood pressure		112.68	126.68	110.68
Pulse rate		86.64	107.76	83.81

Average rise in blood pressure.....24
Average rise in pulse rate.....21.12

The blood pressure and pulse readings before exercise were taken with the girl sitting. After exercise refers to the hopping test, of hopping on one foot fifty times. The two minutes after exercise, two minutes after the hopping test was completed.

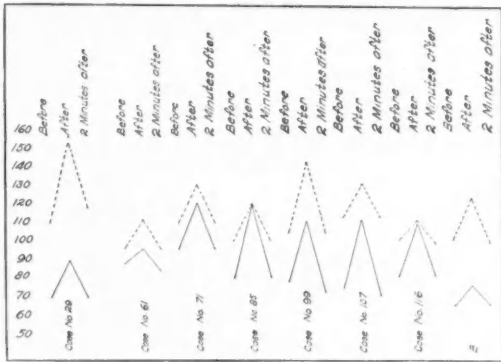


Chart 1.—The response of blood pressure and pulse to exercise eight normal subjects.

over a period of several years in my work at the U. C. L. A. and believe it to be a very reliable standard.

The normal response is the one in which the pulse and blood pressure have risen during the exercise and are at their peak at the close of the exercise, to return to their resting level within two minutes after the completion of the exercise (Chart 1). The abnormal response is any deviation from the normal.

The average age of the girls examined was 16.49 years; the average weight was 122.13 pounds; the average height was 63.49 inches; the average pulse rate was 86.64; the average blood pressure was 112 systolic and 68 diastolic (Table 1).

COMMENT

Girls with Normal Cardiovascular Reactions.—Of the 193 girls who gave a normal cardiovascular reaction, 94 had normal weight; 25 were underweight; 74 were overweight; 85 had palpable thyroids; 35 had palpable cervical glands; 4 had a systolic murmur; upon 79, tonsillectomies had been done; 33 had infected tonsils; 81 had normal tonsils. The teeth were very good (probably an index of the well-nourished condition of the girls); 11 had either moist or dry râles in the chest; two had an arrhythmia; and 79 complained of dysmenorrhea (Table 2).

Girls in Poor Physical Condition.—The number of girls who were in poor physical condition was

72. Of these, 33 were of normal weight, 14 were underweight, and 25 were overweight; 31 had palpable thyroids; 12 had palpable cervical glands; upon 32, tonsillectomies had been done; 14 had infected tonsils; 18 complained of dysmenorrhea (Table 3).

Girls with Abnormal Cardiovascular Reactions. As to the systolic blood pressure, thirty girls showed a delayed return to normal, that is, the blood pressure had not returned to the resting level within two minutes after the completion of the exercise, fifteen showed a drop below the normal level, and two girls showed a rise in blood pressure after the exercise had been completed. In twenty-two girls the pulse failed to return to normal within the allotted time; in nine it had dropped below normal; in one it showed a rise subsequent to the close of the exercise (Chart 2).

In the group of seventy-two girls whom we classified as being in poor physical condition, nine

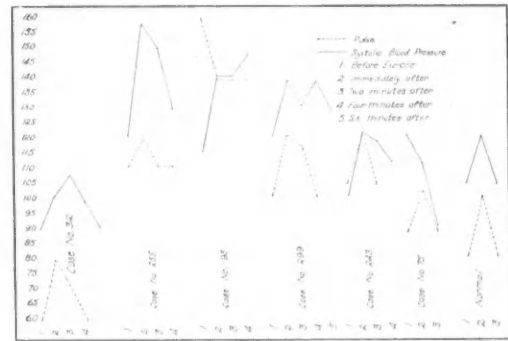


Chart 2.—Six patients who gave an abnormal reaction; charted with a normal patient for contrast. Case 312 has a bradycardia with a rising pulse of 60. Case 255, a patient with badly infected tonsils. Case 95 was a very poorly nourished girl, extremely nervous, with some abdominal pathology of pain, temperature and vomiting. Case 299 has a pronounced systolic murmur, and is very nervous. Case 243, a markedly anaemic patient. Case 95, a patient having an arrhythmia.

gave normal cardiovascular responses, but because of rough breathing, malnutrition or other factors were disqualified. Of the remaining sixty-three, fourteen had a systolic murmur; ten had dry or moist râles; one was definitely hyperthyroid and was under treatment; two were hypothyroid with a B. M. R. of -12 and -23; five were suspected

TABLE 2.—Showing Good and Poor Cardiovascular Reactions to Certain Complications.

	Good cardiovascular reaction		Poor cardiovascular reaction	
	Number of Cases	Per Cent of Total	Number of Cases	Per Cent of Total
Number of girls examined.....	193	73.00	72	27.00
Weight normal	94	35.47	33	12.49
Underweight	25	9.43	14	5.23
Overweight	74	27.92	25	9.43
Palpable thyroid gland	85	32.06	31	11.69
Palpable cervical gland	35	13.20	12	4.52
Cervicaladenectomy			1	
Systolic murmur	4	1.50	13	4.92
Tonsillectomy	74	30.18	32	12.07
Tonsils poor	33	12.49	16	6.04
Chest râles (moist or dry)	11	4.18	9	3.79
Irregular pulse	2		9	3.79
Dysmenorrhea	79	29.80	18	6.82

TABLE 3.—Showing the Types of Abnormal Reactions in Pulse and Blood Pressure.

	No. of Cases
Blood pressure showed a delayed return to normal.....	20
Blood pressure showed a drop below normal.....	15
Blood pressure showed a delayed rise.....	2
Pulse showed a delayed return to normal.....	22
Pulse showed a drop below normal.....	9
Pulse showed a delayed rise.....	1

of being hypothyroid and B. M. R.'s advised, four of these being definitely overweight; eight had a marked arrhythmia; six had a tachycardia; one a bradycardia; one had a discharging sinus of the neck of probably a tuberculosis nature; one was dyspneic; one had very severe attacks of abdominal pain associated with temperature, nausea, and vomiting; nineteen showed no definite pathologic changes, but, upon checking their activities, it was found they were carrying very heavy programs at school or were indulging in strenuous athletics. Some gave some presumptive evidence of either endocrine upset or a focus of infection (Table 4, Charts 2 and 3).

SUMMARY

From a group of 265 girls whose living conditions should be conducive to the best of health, seventy-two were physically disqualified. Of this group of seventy-two girls, sixty-three had a poor cardiovascular test, and forty-four showed definite pathologic changes. The nineteen remaining girls gave sufficient evidence of poor condition to warrant a complete physical examination.

CONCLUSION

The cardiovascular test is a definite index to the physiological reserve of the individual.

1008 West Sixth Street.

DISCUSSION

JOHN C. RUDDOCK, M. D. (1930 Wilshire Boulevard, Los Angeles).—The subject which Doctor Close has brought before us is timely, and emphasizes several points:

1. The author has selected the "hopping test" as a functional exercise test, and has recorded the cardiac

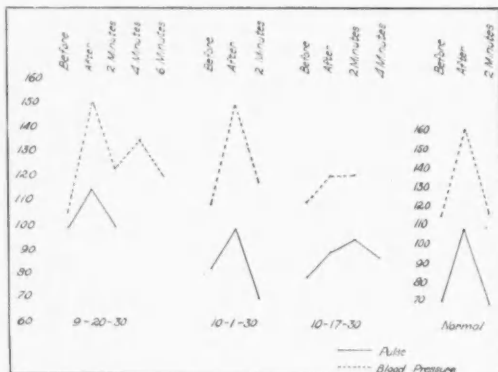


Chart 3.—Three different reactions in a girl who was definitely hyperthyroid, charted with a normal patient for comparison.

reactions following exercise. The selection of the type of exercise test is immaterial, inasmuch as all the observations are made after a definite standard amount of exercise.

This paper also brings out the fact that we have no standard exercise test to make or draw conclusions from concerning the ability of the heart to do work.

2. The author has shown very clearly that the cardiovascular response is in direct ratio to the general health of the individual.

Overweight, underweight, glandular dyscrasia, menstrual disturbances, the autonomic nervous system, infections, all play a part in the physiological reserve of an organism. The cardiovascular response is an index to this physiological reserve, as shown in the inability of the organism to do work.

Great care should be taken among those physicians who are responsible for systematic examinations of school children that a poor cardiovascular response to exercise is not taken as a definite indication of a pathologic heart. Too many children are thus labeled, and the underlying cause dismissed.

Work of this character is valuable because it helps to evaluate those simple tests that are so frequently done, and may save a child from being indexed wrongly with a disease that may influence its entire career.

TABLE 4.—Showing the conditions present in those girls who have a poor cardiovascular response to exercise.

	No. of Cases
Systolic murmur.....	14
Arrhythmias.....	8
Tachycardia.....	6
Moist or dry rales.....	10
T. B. (?) sinus in neck.....	1
Hyperthyroid.....	2
Hypothyroid checked.....	2
Suspected hypothyroid B.M.R. advised.....	5
Obesity.....	4
Bradycardia.....	1
Dyspnoeic.....	1
Severe cold.....	1
Markedly nervous.....	4
No definite pathology.....	19
Anemia.....	1

WILLIAM DOCK, M. D. (Stanford Hospital, San Francisco).—Doctor Close is using the vascular response to a standard exercise to test the general condition of a subject, not as a test for cardiac efficiency. In this she is following the correct procedure, for such tests are modified more by the individual's previous training (in the athlete's sense), his general muscle tone and his weight, and his degree of pulmonary emphysema than by the condition of his heart muscle. The custom of referring to these tests as cardiovascular tests deluded some people into thinking of them as tests of cardiovascular fitness; actually the cardiovascular apparatus is studied as an index of general fitness. Doctor Close has shown that in an unusually healthy region one-fourth of a selected group of well cared for young women are not physically fit, as shown by this test. Apparently none of these subjects had heart disease, and I am afraid I would not agree that 60 per cent of these had "definite pathologic changes." I should at least except the fourteen systolic murmurs, the eight with marked arrhythmias, the six with tachycardia, the one with bradycardia, and all of the ten with rales who did not have x-ray evidence of tuberculosis. I agree with Doctor Ruddock that it is important for the physician to exclude disease and worry about disease, and that when an individual has an abnormal vascular response to exercise, together with the physical signs listed above, disease should be ruled out unless it can be proved by other evidence, and properly regulated rest and exercise recommended in order to get the subject into better physical condition.

THE HOSPITAL FOR CHRONIC DISEASES*

ITS PLACE IN THE COMMUNITY, WITH PARTICULAR
REFERENCE TO THE CARE AND STUDY OF THE
SO-CALLED DEGENERATIVE DISEASES

By ERNEST S. DU BRAY, M. D.
San Francisco

DURING the past two thousand years the predominant type of disease from which mankind has suffered has undergone a gradual change. The scourges of ancient days—leprosy, smallpox, and plague—have given way to the large and important group which we today designate the chronic degenerative diseases.

Examination of the records of out-patient clinics show that, roughly, 60 per cent of the patients applying for treatment have some form of chronic disease. This type of illness requires months of treatment to achieve rehabilitation. Diagnosis often requires elaborate facilities, and treatment is expensive, difficult, and taxes the skill of the physician and the resources of the hospital or clinic. The protracted duration of the disability results in serious financial drain on the patient's family, so that in the majority of cases the sufferers must become, in part at least, public charges. Yet in the whole United States, with the exception of a very few hospitals for chronic diseases, no adequate provision has been made for them either by institutions or by organizations giving home care.

Subjects of acute illness, the duration of which is measured by a period of weeks, receive excellent care in the general hospitals. And there are numerous special hospitals for children, maternity cases, diseases of the eye, diseases of bones and joints, and for nervous diseases. For the chronically sick, however, there is no institutional haven.

SCOPE OF THE PROBLEM

The scope of the problem is indicated by the many different types of institutions which at present serve as refuges for the chronic patients—homes for incurables, almshouses, city infirmaries, and homes for the aged and infirm. They all minister to the same class of individuals, but hardly one of these institutions has made a study of the medical needs of its inmates in an attempt to fill its patent obligations.

Chronic physical disability is determined largely by disease of the heart and arteries, organic affections of the nervous system, cancer, nontuberculous diseases of the lungs, the various forms of rheumatism and Bright's disease, diabetes mellitus, and other disturbances of the glands of internal secretion or metabolism. Adequate treatment of the chronically sick has been greatly hindered by two misconceptions: either they have been labeled "incurable," or they have been confused

with the gradual decline in physical well-being which accompanies old age or senility.

There has been a growing tendency to confuse convalescent with chronic patients, due probably to the fact that both often need prolonged institutional care, which cannot be given in a general hospital. The obvious difference, however, is that the convalescent patient is assumed to be capable of a complete physical and economic restoration, whereas only some of the chronic patients can be rehabilitated. Further, the convalescent needs little medical care, perhaps an occasional surgical dressing, a special diet, and sympathetic supervision by an intelligent nurse. On the other hand, the chronically sick often require much medical attention from physicians, nurses, dietitians, and technical assistants, as well as specialized equipment used for diagnosis and treatment.

CLASSIFICATION OF PATIENTS WITH CHRONIC
DISEASES, ACCORDING TO THEIR
MEDICAL NEEDS

An intelligent grouping of patients suffering from chronic diseases according to their medical needs serves to clarify many misconceptions. Three classes may be established as follows:

Class A. Patients requiring medical care for diagnosis and treatment;

Class B. Patients requiring chiefly skilled nursing care;

Class C. Patients requiring only custodial care.

Individuals do not remain in one class indefinitely. A patient in class "A" may improve sufficiently to be discharged from further care, or he may enter the custodial class "C." A certain number of chronics, however, who belong to class "A" are ambulant, although too sick to follow their accustomed occupations, and can be treated by their physicians or in out-patient clinics. They may be termed "Class A clinic patients."

Class "C" makes up about 60 per cent of the chronics. Simple domiciliary care in an institution is sufficient, provided they have access to a hospital when a renewed progression of their disease sets in. The provision of adequate care for a class "A" patient is constructive effort; often it leads to whole or partial rehabilitation and to economic relief from the burden of illness.

There seems to be no general understanding of the type of institutional care that is needed by the chronically sick, and few of the institutions in which they find refuge are prepared to meet their wants. For the most part, institutions offer little beyond board and lodging, which suffices only for the custodial group. This state of affairs is due to the ignorance of the nature of chronic disease, and the confusion of patients belonging to classes A, B, and C with one another, and with the aged and convalescent. It must be reemphasized that each group requires different institutional resources.

* Presented before a Section of the American College of Physicians at the Laguna Honda Home, San Francisco, at the annual meeting, April 6, 1932.

METHODS OF RELIEF FOR THE CHRONICALLY SICK

The hospital for chronic diseases offers the most suitable means for caring for the chronically sick. The establishment and maintenance of such institutions involves a formidable expense and will be possible only in large communities. With rare exceptions, the hospital for chronic diseases will have to be conducted and supported by the municipality or other constituted authority, county or state. Just as local and state governments have been compelled to maintain institutions for the tuberculous and the insane, so they will have to provide for the chronically sick.

THE HOSPITAL FOR CHRONIC DISEASES

It is the task of the present generation to erect and maintain hospitals for chronic diseases, and so to discharge its duty to the one great class of the sick which has, for the most part, been overlooked and neglected. Such an enlightened policy will lead to the gradual abolition of the almshouses and their replacement by a commensurate number of state hospitals for chronic diseases.

The first representative of this type of institution is Montefiore Hospital for Chronic Diseases, in New York. Founded in 1884 as a "Home for Chronic Invalids," it gradually evolved into a hospital for chronic diseases. It is still almost unique in its field.

It should always be kept in mind that the hospital for chronic diseases has a dual function. It must offer facilities for diagnosis and treatment on the one hand, and for domiciliary care on the other.

THE MEDICAL ORGANIZATION OF THE HOSPITAL FOR CHRONIC DISEASES

I shall omit discussion of what the ideal physical plant of such an institution should be with reference to its site, buildings, and administration. However, I feel that some suggestions as to its medical organization are in order. This organization is as complex and as complete as that of a general hospital, but differs in certain special adaptations which are conditioned by the particular functions of the special institution. The necessary medical facilities include a staff of visiting physicians, a house staff, special diagnostic equipment such as an x-ray department and laboratories, accurate medical charts, a medical record room, a dental department, and special therapeutic equipment such as operating rooms and physiotherapeutic apparatus.

THE MEDICAL STAFF

General hospitals have little difficulty in recruiting their medical staffs. Physicians seek hospital appointments not only to give altruistic service to unfortunate lay citizens, but also because the appointments give them prestige, and their work in the hospital affords unexcelled opportunity for gaining clinical experience on a very large scale.

But the hospital for chronic diseases is in a far less strategic position in regard to its hospital staff. The greatest handicap to the organization of a strong medical staff in this kind of hospital is the slow turnover of patients and the chronicity of their disabilities. Special measures must be taken to make the work attractive to the medical staff. First, each physician can be given a larger service, so that the greater number of beds compensates in part for the slow turnover. The most important measure, however, which will serve to build up a strong medical staff is provision of adequate resources for complete diagnosis and investigation. Thus, full x-ray and electrocardiographic equipment are indispensable in every such institution. Instruments for special examinations of all sorts should be available. And last, but not least, laboratory facilities should be as generous as possible. When a staff man shows special aptitude and interest in prosecuting some clinical investigation, he should be given every moral and financial encouragement. Such a liberal policy, which on the surface may seem extravagant, will draw physicians to the institution and will encourage their regular attendance. Such a hospital can be of greater service to young physicians and obtain a commensurately greater return by providing a number of salaried residences in medicine, neurology, or orthopedics, for men who have completed their intern year. The quality of the physicians who apply for such positions depends altogether on the name and the medical tradition of the institution. The establishment of a fine reputation is determined by the character of the visiting staff and of the laboratories and facilities placed at the disposal of the physicians.

The discipline among the house staff should be very strict, and emphasis should be placed on promptness in the performance of their duties. There is always a tendency in such an institution to postpone work as not urgent, because of the belief that the patient will remain a long time. The first complete examination of a patient newly admitted should be recorded within twenty-four hours of admission. The clinical charts should be meticulously kept, and when the case is completed they should be filed in a central record room. The autopsy protocol should be added to those records where postmortem examination is made.

THE NURSING PROBLEM IN THE HOSPITAL FOR CHRONIC DISEASES

The problem of nursing in the hospital for chronic disease is important. By some it is thought that the time of a trained nurse is too valuable to waste on a chronic. The misconceptions that enshroud this subject may be attributed to the almost universal ignorance of the functions of hospitals for chronic diseases, and to the confusion of such institutions with homes for incurables and aged. In the question of nursing, too, a proper classification of patients sheds light on the situation. Class "A" and "B" patients demand the services of skilled, conscientious,

trained nurses; the custodial or "C" group are adequately served by practical nurses or attendants properly supervised.

From the standpoint of nursing education, the chronic offers certain definite advantages. His psychology differs considerably from that of a patient ill only a few weeks; his morale is apt to be shattered, or he may know much more about his illness and its treatment than is good for him. The very length of the patient's stay in the institution adds to the nursing problems. Prolonged and intimate human contacts, no matter what the attendant circumstances, are apt to lead to friction. Rare tact and firmness are required of a head nurse, and she who cares for such a patient for several months learns nursing methods in a way that is unknown to the nurse on an acute service; she is likewise much better qualified in many branches of her profession than her colleagues in the general hospital.

The sick chronic makes as great demands on the time of a nurse as does the patient in the general hospital, so that the time spent per patient may vary from a minimum of one hour for a diabetic to a maximum of six hours for an incontinent patient with a spastic paralysis of the legs. On the whole it is recognized that the nursing needs of chronics are more continuous than those of patients with acute diseases. In the custodial section the nursing attention is naturally much less per patient.

THE LOCAL SITUATION IN SAN FRANCISCO WITH REFERENCE TO THE HOSPITAL FOR CHRONIC DISEASES

There are numerous other topics regarding the chronic hospital which might be profitably mentioned, such as the special departments for diet, physiotherapy, and occupational therapy. Time will not permit discussion of these important services.

I wish to conclude these remarks with a short consideration of our local status in San Francisco, with reference to the care of the chronically sick. The object of the foregoing comments has been to stress the place and purpose of the chronic hospital in the modern large community, and to indicate in a general way the lines along which this type of institution should be developed.

During the past three years the two universities in San Francisco, through their respective medical schools, have placed at the city's disposal two fairly coherent visiting medical staffs attached to the Laguna Honda Home. Each staff is now responsible for certain wards, the active medical care of the patients being immediately under the supervision of a resident staff and interns, chiefly from the two medical schools.

It has been a pleasure to have served as a member of one of these visiting staffs, and to note the complete harmony which has prevailed between the two visiting groups. It has further been

gratifying to note the gradual change in the attitude of the incoming interns for their service here. At the present time most of the young men present a serious and eager manner, and the character of their work indicates that they sense that there is a unique training and rare opportunity for clinical experience in the chronic hospital. As time goes on, consciousness of this will increase, and it will not be surprising to see the time when some of our best students will voluntarily seek work in our Chronic Hospital, with the same enthusiasm that they now approach their services in the large general hospitals.

Our experience in these past years has fully convinced us of an important work to be done here. The challenge of the chronic degenerative diseases is always with us. Their proper study and care, as I see it, resolves itself ultimately into a dual problem. One side of this problem has already been met by the organization and operation of complete and capable medical visiting and resident staffs. The other phase of the problem is primarily of a physical nature, and requires for its fulfillment suitable hospital buildings supplied with the special facilities, not only for the exhaustive study of chronic disease and all that entails but also certain special features not ordinarily found in the general hospital.

As has been suggested, the chronic hospital is destined to be developed primarily as a municipal or state institution. This is a significant fact because the governing boards of such institutions may at times be influenced by political motives. For the best interests of all, these governing boards must appreciate the true objective of the chronic hospital; and, further, they must have the courage to support its advancement in a most enlightened and substantial way.

The vast majority of the medical personnel for this type of institution will always be spirited and earnest clinicians serving without salary; consequently, to maintain the ardor and interest of such men, maximum opportunities should be made.

IN CONCLUSION

In conclusion, then, allow me to predict that the chronic hospital, organized along the lines I have indicated, is bound to be a unit in the future health plans of American municipalities and counties. A change in the public consciousness toward the chronically sick is imminent. It behooves the medical profession, and particularly the medical schools attached to the universities, to be prepared to advise and direct the development of these institutions in their respective communities in the same intelligent manner that general hospitals are now controlled and directed in the large cities. Thus organized and directed, the chronic hospital will offer fine opportunities for service by the medical profession, as well as returns to the profession in satisfaction, education, and scientific achievement.

THE LURE OF MEDICAL HISTORY*

ESSAYS ON THE HISTORY OF EMBRYOLOGY†

By A. W. MEYER, M. D.
Stanford University

X

BONNET

Bonnet, who called himself a pupil of Réaumur, experimented with aphidae and rediscovered the fact that parthogenetic development occurs in them. He tells how he reared these insects to the eighth generation and how he made many experiments on polyps. He wrote a treatise on insects and made researches on the diverse uses of leaves in plants. Although Bonnet usually is regarded as a philosopher, he began his life work as an experimental naturalist. It is recorded that he remained such until his eyesight failed him through enthusiastic work with the microscope at the age of twenty-five. There can be little doubt that he never lost his interest in investigation or failed to recognize the great or even crucial value of a well-conceived experiment. He showed the liveliest interest in the experiments and observations of others and suggested experiments to them. In spite of his zealous defense of preformation, he always was ready to change his philosophical conceptions if they failed to account for observed facts. This is well illustrated by the modification of his ideas regarding emboitment. Bonnet's objection to epigenesis apparently was that of those of the present day who reject the implication of spontaneous generation, for the epigenesists of his day did in fact assume that each organism arose anew from unorganized substances at the time of conception. Bonnet thought it seemed that Nature had jumped from the inorganic to the organic and felt that his successors might bridge the gap.

Bonnet's experiments in embryology all bore on the question of generation and restitution of the individual. He was interested in, and experimentally tested, the regeneration of the heads of land snails, that of the limbs and tails of water salamanders, and also inquired into the same processes in crabs, worms, and polyps. He says that from this work he concluded that the assumption of the preëxistence of the germ offers the best explanation for the observed facts. In order to account for the many different portions of an organism that may be regenerated, Bonnet postu-

lated that three forms of preformation are necessary for maintaining the integrity of the individual and one form for the perpetuation of the species. It was in connection with the latter that he accepted the idea of emboitment *ad infinitum*, at first, believing that each preformed individual possessed his specific, even if not his individual characteristics.

EXPERIMENTS WITH BEES

Although they kept bees in glass hives, the older experimenters were unable to discover the manner of fertilization. Since they sometimes found that eggs which were not surrounded by "the whitish substance" failed to develop, they concluded that the absence of this substance was due to an oversight on the part of the males whose failure to add it to the eggs after they had been laid, was responsible for their failure to develop. Debraw, an English naturalist, writing in 1776, declared that the eggs of bees only develop after the males deposit this whitish liquor found in appropriate vessels within their bodies, upon them. He referred to the ideas of Pliny and said that the "incomparable Réaumur" has "in a great measure removed the veil and brought their manner of generation nearly to proof." He also quotes from the "celebrated Maraldi," who after several years of work concluded that the eggs of the bee were fertilized after being laid. When speaking of Maraldi, Debraw wrote:

"This ingenious naturalist, by a nice examination of the structure of the drones, had, as well as Swammerdam, discovered some resemblances to the male organs of generation; and from thence conjectured, they were the males of the bee-insect; but he owns, with the rest, that he never could discover them in the act of copulation.

"Having stood the trials of so many prying eyes in every age, the bees, as has been observed by an ingenious author, had gained the character of an inviolable chastity, till Réaumur blasted their reputation. He makes the queen no better than a Messalina; though he could see no more than what would raise a mere jealousy or generate suspicions.

"In order to be the better understood in the relation of the structure of the drones, had, as well as Swammerdam, discovered some resemblances to the male organs of generation; and from thence conjectured, they were the males of the bee-insect; but he owns, with the rest, that he never could discover them in the act of copulation.

"But of late Mr. Schirach, a German naturalist, has given us a very different view of the classes that constitute the republic of bees, in an ingenious publication in his own language, under the title of 'The Natural History of the Queen of the Bees,' which has been since translated into French; an account of which has been given in the Monthly Review, from which I beg leave to relate the author's doctrine with regard to the working-bees only; the quality and functions of the drones being points which do not appear to be yet settled by Mr. Schirach himself. He affirms, that all the common bees are females in disguise, in which the organs that distinguish the sex, and particularly the ovaria, are obliterated, or at least, through their excessive minuteness, have not yet been

* A Twenty-five Years Ago column, made up of excerpts from the official journal of the California Medical Association of twenty-five years ago, is printed in each issue of California and Western Medicine. The column is one of the regular features of the Miscellany Department of California and Western Medicine, and its page number will be found on the front cover index.

† This is the ninth paper of a series of essays on this subject. Previous papers were printed in this journal as follows: Part I, in December California and Western Medicine, page 447; Part II, in January number, page 40; Part III, in February number, page 105; Part IV, in March number, page 176; Part V, in April number, page 241; Part VI, in May number, page 341; Part VII, in June number, page 394; Part VIII, in July number, page 41; Part IX, in August number, page 111.

observed: that every one of those bees, in the earlier period of its existence, is capable of becoming a queen-bee, if the whole community should think proper to nurse it in a particular manner, and raise it to that rank. In short, that the queen-bee lays only two kinds of eggs, viz., those that are to produce the drones, and those from which the working-bees are to proceed.

"The trials made by Mr. Schirach seem to evince the truth of his conclusions in the most satisfactory manner, singular as they appear at first sight; and indeed in my own judgment, from the constant happy result of numerous experiments, which I began near two years before Mr. Schirach's publication, and repeated every season since, I am enabled to pronounce on their reality.

"Chance, I own, befriended me in that discovery, whilst I was most anxiously endeavouring to ascertain the use of drones. It was in the spring of the year 1770, that I for the first, discovered what Maraldi had only conjectured, I mean the impregnation of the eggs by the males; and that I was made acquainted with the difference of size in the drones or males, observed by Maraldi in his 'Observations Upon Bees,' inserted in the History of the Royal Academy of Sciences for the year 1712, p. 333, in these words:

"We have of late found a great quantity of drones, much smaller than those we had formerly observed, and which do not exceed in size the common bees; so that it would not have been easy to distinguish them in that hive from the common bees, had not the quantity of them been very considerable. It might certainly have happened, that in those hives, where we have not been able to discover large drones, there were a great number of those little ones, which may have been intermixed among common bees, when we were yet ignorant that any such small drones were existing."

"Réaumur himself, p. 591, of his 'Natural History of Insects,' says, 'We have likewise found drones that were no bigger than the common bees.'

"They have notwithstanding escaped the observation of Mr. Schirach, and of his friend Mr. Hattorf, member of an academy in Lusatia, who, in a memoir he presented in the year 1769, annihilates entirely the use of drones in a hive; and advances this singular opinion, that the queen-bee of a hive lays eggs which produces young ones, without having any communication with the drones. For what purpose should wise Nature then have furnished the drones with that large quantity of seminal liquor? To what use so large an apparatus of fecundating organs, so well described by Réaumur and Maraldi?

"But I beg leave to remark, that those gentlemen seem to have drawn too hasty conclusion from their experiments, in rejecting the drones as bearing no share in the propagation of those insects. Their observations, that hives are peopled at a time of the year when there are no drones in being; is no way conclusive; as it is evident, that they had seen none but drones of a large size, their silence on the difference in the size of them justifying my remark. But to resume the narrative of my experiments: I had watched my glass-hives with indefatigable attention from the moment the bees, among which I had taken care to leave a large number of drones, were put into them, to the time of the queen laying her eggs, which generally happens the fourth or fifth day. I observed the first or second day (always before the third) from the time the eggs are placed in the cells, that a great number of bees, fastening themselves to one another, hung down in the form of a curtain, from the top to the bottom of the hive, in a similar manner they had done before at the time the queen deposited her eggs; an operation which (if we may conjecture at the instincts of insects) seems contrived to hide what is transacting: be that as it will, it answered the purpose of informing me that something was going for-

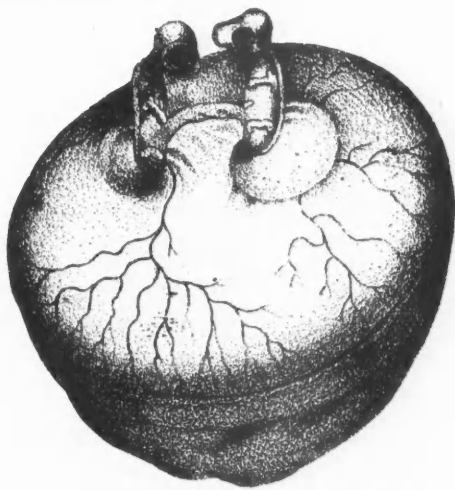


Fig. 6.—Twin chicks, six days old, after Wolff.

ward. In fact, I presently after perceived several bees, the size of which, through this thick veil, (if I may so express myself) I could not rightly distinguish, inserting the posterior part of their bodies each into a cell, and sinking into it, where they continued but a little while. After they had retired, I saw plainly with the naked eye a small quantity of whitish liquor left in the angle of the basis of each cell, containing an egg: it was less liquid than honey, and had no sweet taste at all. Within a day after, I found this liquor absorbed into the embryo, which on the fourth day is converted into a small worm, to which the working-bees bring a little honey for nourishment, during the first eight or ten days after its birth. After that time they cease to feed them; for they shut up the cells, where these embryos continue inclosed for ten days more, during which time they undergo various changes too tedious here to describe.

"To evince the reality of this observation and to prove that the eggs are fecundated by the males, and that their presence is necessary at the time of breeding, I proceeded to the next experiments.

"They consisted in leaving in a hive the queen with only the common bees, without any drones, to see whether the eggs she laid would be prolific. I accordingly took a swarm, shook all the bees into a tub of water, and left them in it till they were quite senseless, which gave me an opportunity to distinguish the drones without any danger of being stung. After I had recovered the working-bees and their queen from the state they were in, by spreading them on brown paper in the sun, I replaced them in a glass hive, where they soon began to work as usual: the queen laid eggs, which I little suspected to be impregnated, as I thought I had separated all the drones or males, and therefore omitted watching the bees; but at the end of twenty days (the usual time of their hatching) I found to my surprise some of the eggs hatched into bees, others withered away, and several of them covered with honey. I immediately inferred that some of the males, having escaped my notice, had impregnated only part of the eggs; but, in order to convince myself of the truth of my supposition, I thought it necessary to take away all the brood-comb that was in the hive, in order to oblige the bees to provide a fresh quantity, being fully determined to watch narrowly their motions after new eggs should be deposited in the cells. This was done accordingly, and at last the mystery was unravelled. On the second day after the eggs were placed in the cells, I perceived the same operation which I have related in a former experiment; I mean, the bees hung down in

the form of a curtain, while others thrust the posterior part of their body into the cells: I then introduced my hand into the hive, broke off a piece of the comb containing two of those insects, and kept them for examination. I found in neither of them any sting, (a circumstance peculiar to drones only); and upon dissection, by the help of a Dolland's microscope, discovered in them the four cylindrical bodies, which contain the glutinous liquor of a whitish colour, observed by Maraldi in the large drones.

"Having till then never observed any difference in the size of drones, I immediately perused the memoirs on bees, published by Messrs. Maraldi and Réaumur, and found that they had remarked it frequently. I have inserted, in a preceding page, the substance of their observations on that head, as taken from their writings. The reason of that difference must, I doubt, be placed amongst other arcana of nature. I found myself, therefore, under a necessity, in my next experiments, to be more particular in destroying the males, even those which might be suspected to be such.

"I once more immersed all the same bees in water; and, when they appeared to be in a senseless state, I gently pressed every one of them between my fingers, in order to distinguish those armed with stings from those which had none, which last I might suspect to be males. Of these I found fifty-seven, exactly of the size of common bees, yielding a little whitish liquor on being pressed between the fingers. I killed every one, and replaced the swarm in a glass-hive, where they immediately applied again to the work of making cells; and on the fourth or fifth day, very early in the morning, I had the pleasure to see the queen-bee depositing her eggs in those cells; which she did by placing the posterior part of her body in each of them. I continued on the watch most part of the ensuing days, but could discover nothing of what I had seen before.

"The eggs, after the fourth day, instead of changing in the manner of caterpillars, were found in the same state they were in the first day, except that some of them were covered with honey. But a very singular event happened the next day about noon: all the bees left their own hive, and were seen attempting to get into a neighbouring common hive, on the stool of which I found their queen dead, having, no doubt, been slain in the engagement. The manner in which I account for this event is as follows: the great desire of perpetuating their species, which is most observable in these insects, and to which end the concurrence of the males seems so absolutely necessary, made them desert their own habitation, where no males were left, in order to fix their residence in a new one, in which, there being a good stock of males, they might the better accomplish their purpose. If this does not yet establish the reader's faith of the necessity of the males bearing a share in the fecundation of the ova, the next experiment cannot, I presume, fail to convince him.

"I took the brood-comb which, as I observed before, had not been impregnated; I divided it into two parts; one I placed under a glass-bell, No. 1, with honey-comb for the bees' food; I took care to leave a queen, but no drones, among the common bees I confined in it. The other piece of brood-comb I placed under another glass-bell, No. 2, with a few drones, a queen, and a number of common bees, proportioned to the size of the glass; the rest I disposed of as before. The result was, that in the glass, No. 1, no impregnation happened: the eggs remained in the same state they were in when put into the glass; and, upon giving the bees their liberty on the seventh day, they all flew away as was found to be the case in the former experiment: whereas, in the glass, No. 2, I saw, the very day after the bees had been put under it, the eggs; the bees did not leave their hive on receiving their liberty; and, in the course

of twenty days, every egg underwent all the above-mentioned necessary changes, and formed a pretty numerous young colony, in which I was not a little startled to find two queens."

Gleichen, who also tried to mate ducks with roosters and rabbits, says that a marten unfortunately killed the two first after the cock had tread the duck, which, however, had laid eggs which were sterile. He stated that he never saw copulation between the rabbit and duck as reported by Réaumur and the writer of the letter to Noirmontier, which was cited by Buffon. Gleichen also repeated what he rightly called the ingenious experiments of Bengelin, reported in the *Hamburger Magazine*. The latter replaced the egg-white in eggs of the hen, duck, and pigeon with that from those of other species. Gleichen, who repeated these experiments, found that the eggs always spoiled and he says he got nothing but an "insupportable stench for his trouble." Since the same conditions always resulted whenever Gleichen exchanged the whites of eggs of the same species, he surmised that it was contact with the air which was responsible for the putrefaction and that an exchange of albumen in vacuum might succeed.

Gleichen, who was an animalculist, nevertheless opposed the preëxistence of germs, and said one could not see them in ova nor could one see the sperm in fertilized ova as one should be able to do if they penetrated the egg as some had held. He believed in crosses between the dog and hog, and the deer and the horse, and thought that children which resembled their mothers most were most likely to have maternal impressions. He also referred to the *Gentlemen's Magazine* of the year 1757 in which the case of a hen egg is mentioned in which a toad was alleged to have been found, but thought the assertion of a Moravian soldier who claimed that he was pregnant, was probably the result of an idle brain.

Gleichen also mentioned the idea that the tail of the spermatozoon represents the precursor of the vertebral column and that hence only those animals which possess a tail in adult life should have tailed spermatozoa. He says that this was his opinion and also that of Lieberkuhn and Hamburger, until he saw that spermatozoa of certain fishes are tailless.

It long had been a common opinion that the mammalian ovum passes from the ovary to the uterus through the tubes. This opinion probably was derived from observations on birds. Swammerdam also refers to the general belief that its passage gave rise to pleasurable sensations and sometimes caused swooning on the part of the mother. It also was firmly held that the tubal fimbria clasped the ovary to receive the ova as they were discharged, and it may be recalled that Leeuwenhoek protested against this idea.

HAIGHTON

With pecuniary aid from William Hunter, Haighton undertook a carefully planned series of experiments in 1797 to determine whether ova

really are discharged from the ovary, whether sperm must reach the ovary, and whether the presence of corpora lutea is a reliable sign of pregnancy. Haighton stated in this connection that "though some important facts are clearly ascertained, there are others still problematical. Physiologists are by no means agreed concerning the immediate cause of conception. All admit the necessity of sexual intercourse. They acknowledge, too, the necessity of some part of the female being affected by the direct contact of a fecundating fluid, but what the precise part is which must receive the stimulus, has hitherto been involved in mystery and doubt. Nor are they more unanimous respecting the state or condition of the substance that passes from the ovaries; whether at the time of its expulsion it has a circumscribed vesicular character, or whether it has no determined figure. De Graaf and Malpighi, in the last century, and some respectable physiologists of the present day, adopt the first opinion; Haller and some others favour the last."

From his first series of experiments on rabbits, Haighton concluded that the "corpora lutea furnished incontestable proof that impregnation either does exist, or has proceeded." Haighton refers to Haller's statement that he saw semen in the uterus of a sheep forty-five minutes after coitus, but he apparently was unconvinced and concluded from his experiments, that it is not necessary for semen to enter the uterus or tubes because if it were, ligation of the tubes should cause sterility. Strange as it may seem at first thought, Haighton concluded that his experiments showed that this is not the case. This was because he regarded the presence of corpora lutea as proof of the occurrence of impregnation in the ovary. Since corpora lutea formed on the side in which a tube had been ligated as well as on the unoperated side, his proof seemed incontestable to him. Haighton carefully compared the number of corpora on the two sides with the implantations on that side of the uterus and always found them to be the same on the unoperated side. He concluded that no uterine implantation had occurred on the side on which the tube had been ligated because the conceptuses were prevented from descending into the uterus and he hence regarded it as a law that "the ovaries can be affected by the stimulus of impregnation, without the contact of either palpable semen, or the aura seminalis." He doubted the correctness of Nuck's statement that he had produced an extra-uterine pregnancy in a rabbit by high ligation of the tubes, because it seemed to contradict the results of his own experiments, and concluded that the conceptions which he thought had occurred in the ovary on the side on which the tube had been ligated, did not continue their development because nature knew that it would be futile to have them do so.

Since Haighton could not find the ovum in the Graafian follicle although he found thirteen (blastocysts) in the tubes, one of which he actually had milked out, he concluded that "the semen first stimulates the vagina, os uteri, cavity of the

uterus, or all of them. By sympathy the ovarian vesicles enlarge, project, and burst. By sympathy the tubes incline to the ovary and, having embraced them, convey the rudiments of the fetus into the uterus. By sympathy the uterus makes the necessary preparation for perfecting the formation and growth of the fetus; and, by sympathy, the breasts furnish milk for its support after birth."

Haighton had a very good idea of the size of the lumina of the tubes from passing mercury and air through them and gave criteria for distinguishing between hydatids or ovarian cysts, and mature Graafian follicles, but he probably mistook some immature follicles for cysts. As far as I am aware, he was the first to have established the fact that internal migration of the ovum does not occur in the rabbit, and although he could not discover an ovum in the Graafian follicle or between the ovary and the tubes, he nevertheless concluded that: "First, the ovum is formed in, and comes out of, the ovarium after conception. Second, it passes down the fallopian tube, and is some days in coming through it. Third, it is sometimes detained in the fallopian tube and prevented from getting into the uterus," which he said it did on the fourth day in the rabbit.

(To Be Continued)

SOME MEDICAL EXPERIENCES IN PERSIA*

BEING A COMPILATION OF LETTERS FROM THE
LATE JOSEPH W. COOK, M. D.

LETTER I

Written at Hamadan, Persia,
The American Hospital,
July 1, 1930, to June 30, 1931.

SHORTLY after Doctor Funk's return in June, 1930, we decided that Doctor Funk should continue in his own dispensary in the Kababian district and that I should develop the Pa-ye-Mosala dispensary opened in January, 1930. Pa-ye-Mosala means At-the-foot-of-the-Mosala, which is a camel-backed hill at the southern edge of Hamadan. The city is on three sides of the hill, on which are ruins of great antiquity. Cyrus, or Darius, is supposed to have ruled the known world from his palace on this spot. Around the edges of the hill are hovels, mud houses, caravansaries, garages, cemeteries, all crowded closely together; the worst quarters are here and the wickedest people, they say, live in this district.

*Editor's Note: An obituary of the late Joseph W. Cook, who was formerly in practice in Banning, Riverside County, was written by Dr. A. L. Bramkamp and printed in the April 1932 California and Western Medicine. It is reprinted in this issue. (See page 189.)

A perusal of that obituary gives the background for a better understanding of the present article. A short time before his death, Doctor Cook sent Dr. Thomas A. Card, secretary of the Riverside County Medical Society, an account of some of his trips and work in Persia. Doctor Card transcribed these letters into typewritten form. The editor gave the sketches to Professor S. L. Millard Rosenberg of the Department of Spanish of the University of California at Los Angeles, who kindly put the letters into their present form, for which cooperation the friends of the late Doctor Cook thank him.

Our dispensary is in the house Miss Montgomery bought for her carriage; the central room is the dispensary, with a room on either side for men and women. Our caretaker lives upstairs and keeps the women reasonably quiet during dispensary hours, week-day mornings from 8 to 12. Possibly seventy per cent of our patients are women; many have learned to come with their babies whenever in need of care. Since it is necessary to have three or four children in order to raise one, we have a splendid opportunity gradually to educate these simple, good women. "I've had twelve children; this is the only one left." "My boy is very sick; I only wish it were my daughter instead." The daughter was deaf and dumb from scarlet fever. Often when women are sick a long time they are divorced; scores of these deserted sick women come to us for treatment. Little girl mothers with sweet, sad faces; older women like Madonnas; the majority wistful, yearning for something better; loving their babies, smiling when we are kind, always modest and always trustful—it has been the greatest privilege of my medical life to minister to their needs.

From July 1, 1930, to June 30, 1931, we have treated 21,378 patients, the majority eye cases, some very bad acute ones; many upset stomachs, hundreds of cases of dizziness, generally indicating worms (they proudly declare expulsion of 15, 30, 100 worms); scores helplessly crippled by osteomalacia; thirty to forty tuberculosis patients, on whom I always spend extra time trying to show the need for rest and to instill hope since tuberculosis is not always mortal, as they believe. Gradually, in the course of a year, comes response and appreciation as a patient returns looking better, realizing that there is a way out; medicine not necessary, only rest in bed. "Don't give your money to me or any doctor; keep it for food," I keep saying. Scores of tuberculous backs, hips, knees; some I have been able to teach the value of sunlight. A boy with a cavity in one lung the size of an orange, his spine bending in two places with tuberculosis, has recovered after lying in the sun two to four hours daily for a year. Even his pulmonary tuberculosis is arrested; his skin is almost black.

A deaf and dumb man was left one morning; he was suffering from strangulated hernia; he had been found crawling along the road, was picked up and brought to us. I closed the dispensary, took him to the hospital and operated on him. Four months later he returned to have his other side, also a hernia, operated on.

One extremely bad case was a cadaverous man with squeaky, high-pitched voice; he had three wives, had been for years an entertainer, singer, and guitar player; he was an opium smoker and weak character but, after all, a human being, down and out. Day after day his three wives brought him; then for a week or so he didn't come; I inquired and found him about to be evicted because of the terrible odor from his sores, by this time about the worst I had ever

seen. I dressed them and had him brought to the hospital, where he died after a few days of comparative comfort, still watched over by his wives. As much as we dislike to accept dying patients, we must at times accept those no one else is willing to receive.

One old man whose work had been that of a runner ahead of the carriages of Persian notables begged me to help his wife, who was driving him mad with her complaints—kill her or cure her, he implored. I could find nothing the matter, and found sugar pills more helpful than even morphin.

A little wizened old lady had a right arm gradually drying up and turning black as ink. For several weeks we treated her, for she was too weak to operate on. One day as I left the dispensary I found her, a bundle in the dirt by the roadside, with her son, both crying. They had been turned out of their house. I picked her up and brought her to the hospital, removed her arm, and for a week or so she, too, was comfortable, until the relieving angel took her away.

But not all of our patients die. Scores of cataracts, stones, hernias, and medical patients have come to the hospital from the dispensary; little babies with upset digestions from too much bread and cucumbers are often brought to us; and we hammer away at the mothers, beseeching them to use care and sense in feeding them.

We have made a place in this corner of the city; most everyone knows us; they recognize us variously, it may be with a friendly stone thrown at the auto, or with a proper salaam. Throughout the city, people know that ours is a place where they can get free treatment, and be admitted to the hospital if necessary. One's heart goes out to these ignorant people when they bring dying patients and expect miracles; and oh, how a doctor wishes he could say with Christ, "I say unto you arise and be healed!"

A policeman one day brought a little boy with a curious frightened stare, foaming somewhat at the mouth, his eyes dry and glassy, temperature 107. I had never seen insanity in a child. Three months before, a little stray dog had snapped at his leg and broken the skin, but nothing was thought of it at the time. Hydrophobia, the first I had seen. I refused to do anything, seeing that the child would die, as he did that night. Not long after, a boy was brought with his jaws locked; twelve days before, he had fallen from a donkey and cut his head; some manure had been rubbed into the wound, and then it had been cleaned. It was open, so we treated it as usual and it healed. But the fatal tetanus microbe had been rubbed in beyond the reach of antiseptics, and within twelve hours, in spite of heroic treatment, the boy died.

Pneumonia, as in other parts of the world, occurs; people walk into the dispensary with a gray-white pallor, panting for breath, in the last stages. In view of the terrific exposure that is so common, it is astonishing that more pulmonary disease is not found. Apparently the use of char-

coal braziers, by which the people sleep or warm themselves, under heavy blankets or quilts—a peculiarly Persian custom—keeps them well usually, as their heads are always in the cool air. I feel safe in saying that out of the thirty thousand patients I have seen, there were not more than one hundred cases of tuberculosis of the lungs, perhaps forty pneumonia, and not more than eight or ten empyema or pus in the chest. Cancer is uncommon; I have seen in all not more than twenty cases. Appendicitis is almost never seen.

Perhaps the most interesting case I saw during the year was at Malayer, in Mrs. Zoekler's dispensary. "Here is a man," said Mrs. Zoekler, "who says he has a leech in his windpipe." Sure enough he had, and I set to work. The sun made a splendid light; with a throat mirror I worked for a long time, vainly trying to grasp the large, slimy, green leech, which was almost suffocating the poor man. Eleven days before, he had lifted a jug of water to drink and had felt the leech slip into his throat. After an hour or more we got the leech out, two inches long, the size of a pencil.

Whenever work became a little slack or weather conditions opportune for itinerating trips, we turned the dispensary over to Doctor Funk or Doctor Andreas, never once closing it, and set out. On the edge of Kurdistan, at Bijar, in October, we treated 2336 patients in fifteen days, operating on seventeen cataracts and lots of smaller cases. In December we went to Burujird through snow and bad weather; there we had 2200 cases: thirty cataracts and scores of smaller operations; crushed three stones, cut for one, and operated on one hernia. Itinerating in winter is risky; finding a proper temporary home is very difficult sometimes. At Sonna in March we had 2936 patients during a wonderful two weeks; did thirteen cataract operations, made seventy-two private calls. One woman, blind for fifteen years, was given her sight. Our work was nearly all open to the public, for advertisement and for educational purposes, insisting on cleanliness, showing them all we could, and that we were not ashamed to say we did not know. Then on to Nehavend for a week in May; 1933 patients, seven cataracts. With 90 per cent of the people reeking with opium and most diseases, and conditions so irremediable, one week was all we could stand; seeing 439 patients a day is not too easy. But, trying as these trips are, they pay; some forty people have come to the hospital as a result of those four trips; 8466 people were treated in four cities, and for every one treated, fully eight or ten know of our work, so our hospital is well advertised, and the doctors better able to handle hundreds of patients and more inclined to refer difficult cases to us. The people generally and the official class receive us most cordially. In our dispensary 21,376 patients have been treated, in our itinerant trips 8466; in all nearly 30,000.

Sincerely yours,

JOSEPH W. COOK.

(To be continued)



Joseph Wright Cook

1883-1932

We call attention, with deepest regret, to the untimely passing of a former fellow practitioner, Dr. Joseph Wright Cook, formerly of Banning, late of Hamadan, Persia, where he was serving his second five-year term as medical missionary under the Presbyterian Board. His death was due to typhus fever, contracted in connection with his work in outlying villages.

While in Red Cross work in Asia during the World War, he developed pulmonary tuberculosis for which he came to Redlands, then to Banning. He made a prompt and complete recovery, practiced in Banning from 1920 to 1929, when he returned, with his family, to Persia to resume the work that drew him irresistibly and for which he was so well qualified.

Shortly before he left Banning he replied to a remonstrating friend: "If I knew I had only one year to live I should want to spend it in Persia."

Those of us who were so fortunate as to have contact with Doctor Cook came to realize his remarkable capacity for understanding his patients' ills—physical, mental, and spiritual—and his equally remarkable skill in ministering to these varied ills.

Doctor Cook exemplified strikingly in himself the profound truth of that saying of the Great Teacher: "He that findeth his life shall lose it." Giving himself in the service of needy humanity he enjoyed the abundant life that the Christ that he loved and talked about and served gives to those that dare to throw away the lesser for the greater good.

Doctor Cook possessed in an unusual degree the many-sidedness so necessary to the really adequate practice of medicine.

His memory is a benediction and an inspiration to those fortunate to have known him.

A. L. BRAMKAMP, M. D.

Use of Artificial Pneumothorax Apparatus During Thoracoplasty.—Haight reports a case of tuberculous empyema with pneumothorax, in which an increase in the intrapleural pressure during the second stage thoracoplasty resulted in marked respiratory and circulatory embarrassment. Prompt lowering of the intrapleural pressure by withdrawal of air from the pleural cavity relieved the condition, which might otherwise have proved fatal. The routine use of the pneumothorax apparatus during thoracoplasty in cases of closed pneumothorax is suggested. By regulation of the intrapleural pressure during the operation, it is possible to obviate a shift of the mediastinum and consequent respiratory and circulatory embarrassment. Furthermore, on completion of the operation, an optimal collapse of the chest wall may be attained by decreasing the pneumothorax as desired or by abolishing it entirely.—*Am. Review of Tuberculosis and J. A. M. A.*, Vol. 98, No. 22.

CLINICAL NOTES AND CASE REPORTS

HEMORRHOID INJECTION

A NEW SPECULUM AND TECHNIQUE

By NORMAN J. KILBOURNE, M. D.
Los Angeles

THE injection treatment of hemorrhoids by well-qualified surgeons has passed out of the experimental stage. Terrell¹ has reported on four thousand patients treated by injection without a single serious consequence, a record hardly equaled by operation. Bensaude² of Paris has reported on five thousand injections without a single stricture or abscess. Morley³ of London has reported on five thousand similar patients, the Martins⁴ on over four thousand patients, and Fansler⁵ on five thousand patients.

TWO FREQUENT ERRORS IN INJECTION TECHNIQUE

Two errors are commonly made in the injection treatment of hemorrhoids:

1. First, the injection is started in the hemorrhoidal mass itself, where congestion is already present. Increased tension results with pain and a tendency to sloughing, hemorrhage, and stricture. A prolapsed hemorrhoid so treated is pushed down out of the canal further than ever.

The proper place for the first injection, according to the more recent technique, is up above the hemorrhoid at the line of junction of the upper border of the anal canal with the ampulla of the rectum. Morley of London goes at times even as high as the first valve of Houston. Just above the upper margin of the hemorrhoid, the mucous membrane of the rectum is loose with space beneath it for the solution. No tension follows and no pain, and danger of sloughing and stricture in competent hands becomes minimal. After this high injection has been made, further injections lower into the hemorrhoidal mass may be made at later treatments. Such a technique makes it

possible to inject successfully in treating even the prolapsed hemorrhoid. There was reason for withholding injection treatment for a prolapsed hemorrhoid by the old technique, but in my experience the prolapsed hemorrhoids (second and third degree of Miles) give perfect results when treated by high injection. The prolapsed hemorrhoid with the surrounding tissue is drawn upward, and shrinks till it is eventually difficult to find a trace of it.

The case for injecting high is equally strong in the injection treatment of certain types of pro-lapsus ani.

2. The second error is to inject blindly without adequate exposure of the whole field into which the solution is to infiltrate. Good exposure is the first requirement in all safe surgery. One must see where and how the solution is acting. Then one can tell not only at what depth the needle is passing, but also can judge from the appearance of the mucous membrane how much solution may be injected. No rule of thumb as to the amount and depth of injection can compensate for the helplessness of the operator who injects blindly into masses, which partly protrude into the side or end of an anoscope. An instrument is needed to give a wide, clear view of the field where the hemorrhoidal area passes over to the ampulla.

A NEW INSTRUMENT*

I have not found adequate speculums for this technique available. With the possible exception of one used by Morley of London, I have not found one described in the literature. In common use is the speculum designed many years ago by an itinerant irregular, named Brinkerhoff. With the Brinkerhoff slide speculum, the lower anal canal falls into the slot obstructing the field, and if the narrow slide is only partly pulled out, the field of view is inadequate. Moreover, patients often complain that the slide type of speculum pinches and hurts them. Other specula sufficiently long have side openings which let the hemorrhoid drop into the opening, making it difficult to get around the hemorrhoid and see to inject above it.

I have had made, and have been using for the past year, a simple speculum of the size and shape shown in the picture. It is just long enough in reach to give a full view of the region above the hemorrhoids. The end is beveled on one side, enough to give a view of the side wall of the rectum. It can be rotated within the anal canal without being removed and reintroduced. The handles are neither at right angles nor at a 45-degree angle to the speculum, but curved so as to fit the curve of the buttocks, with the result that one does not need to push them into the buttocks while inserting the speculum.

The double handle facilitates the work thus: With a single handle the beveled opening must be either on the same side or on the opposite side from the handle. For example, if one is injecting and wants exposure above a hemorrhoid at



Fig. 1.—Advantages of this new speculum are described in the text.

* This speculum may be obtained from E. N. Thomas & Son, Inc., 1208 Fair Oaks, South Pasadena, California.

the three o'clock meridian, he inserts the speculum with the beveled opening at the three o'clock meridian. If the handle is attached on the opposite side at the nine o'clock meridian, a nurse assistant at the left of the patient can hold it conveniently. But if one now turns to inject a hemorrhoid at the nine o'clock meridian, the handle will be at the three o'clock meridian, and to avoid reaching way under or across the field of operation the nurse must go around the table and away from supplies and instruments to hold the handle at the three o'clock meridian. With the double handle all this is avoided. The two handles are never in the way because they fit along the curve of the buttocks. I have found that it is of advantage to the operator, as well as the nurse, to have the two handles, because the operator can hold the instrument with either his left or his right hand without crossing them.

2007 Wilshire Boulevard.

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SIMPLE ULCERS OF THE JEJUNO-ILEUM

REPORT OF CASE

By S. H. BABINGTON, M.D.
Berkeley

ULCERS of the jejunum-ileum are caused by the following: (a) Acute infections such as typhoid and dysentery. (b) Tuberculosis. (c) Syphilis. (d) Uremia.¹ (e) Gastro-enterostomy. (f) External causes such as adhesions, trauma, hernia. (g) Carcinoma.

However, there are thirty-five cases of ulcers of the jejunum and ileum reported in medical literature which do not come under the above classifications. These ulcers, for want of a better term, have been called "simple ulcers."

The occurrence of ulcers in this region increases in direct proportion as we approach the ileocecal valve.

The jejunum is comparatively free of ulcers. But it is the most likely place for ulcers caused by tertiary syphilis and gastro-enterostomy. About 1.5 per cent of all gastro-enterostomy patients return to surgery for removal of a jejunal ulcer.²

The ileum is usually the seat of the ulcers due to tuberculosis, amebiasis, bacillary dysentery, and carcinoma.

Simple ulcers occur both in the jejunum and ileum with a ratio of one to three.

Richardson³ of Boston and Brown⁴ of Edinburgh collected all of the case reports of simple ulcers of jejunum and ileum that they could find up to 1922 and 1924, respectively. Apparently no new cases have since been reported. Recently I made a search in one of the large clinical hospitals in California, and was unable to find a single case on record.

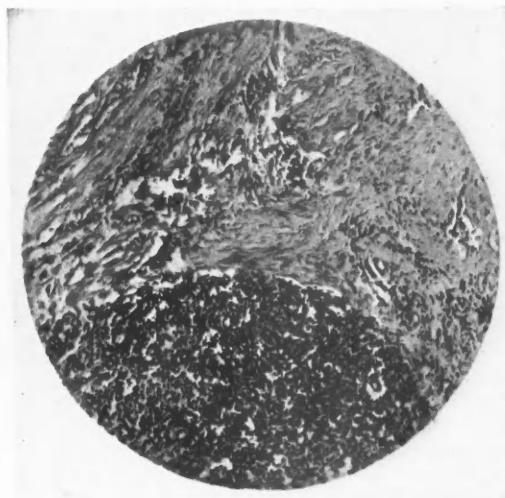


Fig. 1.—Microphoto. Section of ulcer of ileum.

Looking over the reported cases, one finds that such simple ulcers are more often found in males than in females, the ratio being two to one. They are usually in patients who are beyond middle life. Usually only one such ulcer is found in a patient. The symptoms vary from vague abdominal pains to complaints of an acute obstruction and perforation. The pain is usually near the site of the lesion. The pathologic findings are those of a simple inflammatory reaction. Most of these patients have come to surgery because of an obstruction or perforation. The diagnosis of simple ulcer is usually difficult to make. Had the correct diagnosis been made prior to such complications, more lives would have been saved.

REPORT OF CASE

On December 9, 1930, I operated upon such a patient, the history being as follows:

History.—On October 9, 1930 (just two months before the above mentioned operation), I was called to see the patient, a fairly well nourished, well preserved man of fifty years of age, who was in bed suffering from a severe colicky pain in the right upper quadrant, radiating to and under the right shoulder. The patient had no fever, but a definite icterus was present. There was tenderness both in the gall-bladder and tenth rib regions. The patient gave history of similar attacks at least once a year for at least ten years, these attacks being accompanied by sour stomach, belching, occasional vomiting of bile, and transient jaundice. In addition to attacks of this sort, he had had a number of others, unlike the one described, which dated back fifteen years. These were characterized by general abdominal pains, constipation, severe vomiting, with bad odor and bad taste in the mouth. Four of these attacks had been sufficiently severe to send him to a hospital. At each of the hospitals he had had physical examinations, gall-bladder plates, gastro-intestinal series. He was told that since the exact cause of his trouble could not be determined he had best have an exploratory operation, which he each time refused.

In the meantime he had been treated for colitis, gall-bladder trouble, and "dysentery." During the past three years he had been in no hospital. Recently he had noticed that at times, when turning from side to side, he was conscious of a portion of his bowels dropping like a heavy weight from one side to the other.

Physical Examination.—The physical examination showed the gall-bladder condition and icterus as above described; flatulence; slight external strabismus (traumatic); faint systolic mitral apical murmur radiating to the left axilla; slight hypertrophy of the prostate. Smears showed a moderate number of pus cells. The pupillary reactions and deep reflexes were active. The Romberg was negative.

The functional tests revealed a contracted gall-bladder outline with a probable stone shadow. The chest x-ray examination was negative except for a slight hypertrophy of the heart to the left; pleural thickening along the right border of the upper mediastinum; and some hypertrophic changes in the vertebrae. The urine and the blood count were essentially negative; Wassermann was negative; and stools were negative for worms and protozoa, except that two of the specimens showed a number of giardia.

On October 21, 1930, I operated upon this patient and removed a very badly diseased gall-bladder. The points of interest were: The cystic artery made a complete circle around the lower half of the gall-bladder and duct; the gall-bladder itself was divided into two separate chambers because of chronic irritation and adhesions. The gall-bladder wall was very much thickened, and the bile was very thick in consistency. The shadow in the x-ray plate, which had seemed to indicate a stone, was very likely due to these thickened walls and the thick bile, as no stones were found. After the operation new x-ray plates, made on November 20, 1930, failed to show this shadow.

The exploration which was made at the time of this gall-bladder operation revealed the liver, spleen, kidneys, and stomach to be normal. A loop of ileum had a definite fibrous constriction, causing a marked dilatation of the bowel above, forming a pouch about twice as large as the transverse colon. It was freely movable, but there were no adhesions around it. No enlarged glands were found. Apparently the sensation of the movement of a weight from side to side, of which the patient had complained, was due to the "secondary stomach" just described. When full, this pouch could easily shift with the turning of the patient.

After the gall-bladder operation, the patient left the hospital in two weeks, having enjoyed an exceptionally good convalescence.

He reentered the hospital about a month later, December 9, for a bowel resection. I removed about one foot of the ileum, including the large pouch above mentioned, and the fibrous constriction. I then performed a lateral entero-enterostomy.

The specimen showed several scattered, punched-out mucous ulcers with ragged edges but without very much induration. They were about one-half an inch in diameter and about one-eighth of an inch in depth.

There was no definite group arrangement, the ulcers being scattered in various directions along the anterior as well as along the posterior and lateral walls.

Pathologic Report.—Microscopic: acute inflammation of the bowel wall. No evidence of malignancy. (See Figure 1.)

COMMENT

The above case was characterized by several interesting points different from those of previously reported cases.

1. There was more than one ulcer.
2. The bowel formed a large, compensatory pouch, like a secondary stomach, above the constriction.
3. The diameter of the passage at the constriction was less than one centimeter. It did not admit an ordinary Eversharp pencil.
4. The patient at the time of the operation had had only a few mild, vague symptoms referable to the intestinal tract.
5. The symptoms, with exacerbations, dated back fifteen years.

6. Concomitant with the above described condition, the patient had also a diseased gall-bladder, which was removed first.

7. The patient made an uneventful recovery from both the cholecystectomy and the bowel resection, and has since been in excellent health.

2301 Ward Street.

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MONGOLIAN IDIOCY IN JAPANESE

REPORT OF TWO CASES

By ALBERT L. HILL, M.D.
Los Angeles

MONGOLIAN idiocy only rarely occurs in the Asiatic races.¹ Demuth² described a typical case in a Chinese child. Several subjects with that syndrome have been reported in the negro race. A search of the literature reveals no such picture seen or reported in the Japanese. Hence the following case reports would seem to add something to the knowledge of the condition.

REPORT OF CASES*

CASE 1.—S. M., a Japanese boy, age two years and three months, was brought in with the complaint that he could not walk or talk.

Family History.—The father is living, forty-five years of age, in good health, and shows no sign of endocrine disturbance. The mother is thirty-seven years old and in good health. There are two brothers, age fourteen and nine, and two sisters, age twelve and seven. All are well and normal in development. The mother miscarried once, at five months. The grandfather on the paternal side died of tuberculosis. Syphilis is denied. Pictures of the other children, some of whom are in Japan, show no facial abnormalities.

Personal History.—Birth was premature but normal. Birth weight was three and one-half pounds. Time of the labor was two to three hours. There were no birth injuries. Development was very slow and poor during the first year. First teeth came in at seven to eight months. Child has never walked or talked. He was nursed at the breast for eight months, then was given rice, vegetable soups, bread, and some cow's milk. He has had no diseases or illnesses. The mental progress has been much delayed.

Physical Examination.—Temperature by rectum was 100. Weight was 18 pounds and 2 ounces. Height was 30¼ inches. Nutrition was poor. His general development was very poor. He sat up with difficulty. Respirations were regular, and the color was good. He was rather irritable and his cries vague and without purpose. He showed no prostration. Pulse was 100.

Head was short and square; 44.7 centimeters in the O. F. diameter. The diameters of the skull were as follows: biparietal, 14 centimeters; occipitofrontal, 16 centimeters; occipitomeatal, 15¼ centimeters; occipitobregmatic, 15 centimeters. The cephalic index was 87.

* My thanks are due to Dr. Paul Ito and Dr. Fumiko Yamaguchi, who kindly called me in consultation and gave me permission to report these two cases.

The fontanels were all closed. The hair was rather coarse. The ears were regular in shape and of equal length. There was a congenital cataract in the right eye and a slight opacity in the left one. There was no ptosis or nystagmus. Nose was broad, the nares of good size, and there was no discharge. The lips showed no scars and were of a pale grey color. The tongue protruded during the entire examination. The position of the palpebral fissure was typically Mongolian, but more so than those of any other member of the family. The picture of the child shows that excellently.

There were seven teeth above and eight below and there was considerable irregularity in their position. Other examination of the throat was negative. There were no enlarged glands in the neck and the thyroid could not be felt nor seen.

Chest: The chest was 46 centimeters in circumference, presented no rosary or other deformities. Examination of the lungs revealed no abnormalities. The heart was normal in size, regular rhythm, and there were no murmurs.

Abdomen: The abdomen was negative. The testicles were both in the inguinal canals, not yet descended. The penis was rather small for the age. The extremities showed both hands and feet short; no especial in-curving of the little fingers. There was no especial width between the big toes and the others.

Joints: All the ligaments were greatly relaxed, both legs could be placed in complete extension beside the head. Locomotion was accomplished by means of crawling on the belly, and recently the child had begun to get up on all fours, something in the manner of a bear cub. He showed the typical Buddha position when sitting up.

Laboratory Findings.—The Wassermann was negative. The blood showed a hemoglobin of 78 per cent; red blood cell count was 4,840,000; the white blood cell count was 8,600. The differential count showed: polymorphonuclears, 56 per cent; small lymphocytes, 33 per cent; large mononuclears, 1 per cent; eosinophils, 1 per cent; transitionals, 2 per cent. There was no abnormality in staining or in shape of cells. The urine examination was entirely negative. The x-ray examination of the wrists shows three centers of ossification and a very slight curving of the little fingers toward the fourth fingers. Same examination of the skull, both pictures being taken by an expert in this work, revealed no abnormalities except in size and shape.

Diagnosis.—The child was looked upon as a case of Mongolian idiocy and was placed upon a combination of pituitary and thyroid.

Course.—In April, 1928, the child was seen again and his weight then was 22 pounds 14 ounces. Height was 33¼ inches. He had begun to walk at the age of three years and two months. He could say three words at three years. Both his testicles had descended. His intelligence is very low. No further observations have been made.

CASE 2.—K. M., a Japanese girl baby, age fifteen months, was admitted to the White Memorial Hospital, April, 1931, because of her failure to develop normally.

Family History.—The parents were hard-working farmers of average intelligence, the father being forty-six, and the mother thirty-four years of age. Two male sibs, age seven and five years, are mentally retarded. Two other male sibs died at five and three months following acute upper respiratory infections of short duration.



Fig. 1.—Lateral view of Japanese child reported as Case 1. Mongolian idiocy.



Fig. 2.—Front view of Japanese child reported as Case 1. Mongolian idiocy.

Personal History.—The patient was a full term, normally delivered seven-pound infant, the result of the mother's fifth pregnancy. The child was breast fed during the first five months, and that was followed by whole, boiled pasteurized milk up to the present time. Orange juice was given occasionally, but no cod-liver oil up to the present. Appetite has been very poor for the past two months. The child has been badly constipated, which condition has been relieved by enemata. The first sign of dentition appeared two weeks ago. No illnesses have appeared other than frequent colds. She has always been of a quiet disposition, crying rarely; quite indifferent to her surroundings. She showed no desire for food or toys and has never attempted to sit up.

Physical Examination.—The patient appeared poorly nourished, weighing only 14½ pounds, not acutely ill, but lying quietly in bed unable to sit up unsupported. The skin was pale, clear, and not of unusual texture.

The skull appeared typically brachicephalic with flattened occiput. Anterior fontanel open, about one inch in diameter, but not bulging. Pupils reacted to light. Internal strabismus of the right eye and nystagmus of both is present. There was no evidence of blindness; typical mongoloid slant of the eyes. The fundi were negative. Nose was negative. Mouth: Lips not unusual; tongue appeared unusually long, but not thickened, and protruded loosely from the mouth; its surface was moderately fissured, with a prominence of the papillae; arch of the palate was high; tonsils were cryptic and markedly hypertrophied; two lower middle incisors barely through the gums.

Neck was short and thick. Thyroid was not palpable. There was no cervical adenitis. Heart and lungs were negative. Abdomen, negative; no hernia present. Genitalia were those of a normal female infant. Extremities were thin and flabby. Both hands and feet were stubby; joints unusually limber with a marked degree of flexibility. The reflexes were hypoactive. There were no signs of meningeal irritation.

Laboratory Data.—Red blood cell count was 5,900,000; hemoglobin (Sahli), 86 per cent; white blood cell count was 13,000, with 58 per cent polymorphonuclear leukocytes and 42 per cent lymphocytes. Blood Wassermann was negative. Culture of nose and throat was negative. Vaginal smear and urinalysis were negative.

On the day following admission to the hospital, there was a sudden rise in temperature, with development of diffuse bronchitis and death of the patient within twenty-four hours.

The final diagnosis was: (1) Acute bronchopneumonia; (2) Mongolian idiocy; (3) hypothyroidism.

1401 South Hope Street.

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ACARUS SCABEII

By MERLIN T.-R. MAYNARD, M. D.
San Jose

THE acarus of scabies is a constant parasite of the human race. Every physician in his practice sees many cases yearly, but I doubt if the average physician is able to make a positive diagnosis by actual demonstration of the parasite more often than in one patient out of five. This inability to demonstrate the acarus is usually due to a misconception of the pathology of the lesions and the lack of knowledge as to where in the burrow the parasite is to be found. As we read our textbooks it seems a simple matter to locate and pick out the acarus and examine it under the microscope. However, I know of dermatologists who are never able to satisfactorily demonstrate the organism.

When one thinks about what happens in the burrow it is not difficult to accurately trace the parasite and remove it for demonstration. The majority of physicians in their search immediately open the vesicle and search for the parasite within its contents and are baffled when no parasites are found. They also attempt to find the parasite in the papular lesions on the skin of the forearms and abdomen where the search is very difficult, as it is only in the burrows that the organism can be seen and successfully recovered. In lesions on the wrists and hands, where burrows are always present, there should never be any failure in the demonstration of the acarus. The drawing that accompanies the article shows rather schematically the conditions and types of the burrows one most commonly finds.

When the burrow is examined, if it has been there for some time, one first sees the entrance end of the burrow with the skin exfoliated. This is a remnant of the old burrow and has been passed through several days before. We naturally do not find the acarus here. By following this we next see the tract of the burrow, which is filled with tiny black grains; these are made up of altered blood and the feces of the insect. The parasite is also not found here. Next we come to a vesicle with an inflammatory reaction, and

here we search with very rare success for the parasite that is ordinarily not found therein. If we then carefully scrutinize the skin surrounding the burrow, we find a faintly inflamed tract passing out from the vesicle, usually on the opposite side, and by following it to its end we see a tiny white dot that resembles a scale in the skin. At this point there is no inflammatory reaction. Now if we take the tip of a knife—and I find a paracentesis knife the best for the purpose—and prick out this white body and set it into a drop of water, we find that we have recovered the acarus of scabies. The physician who carries out these steps of examination and searches for the white dot at the uninflamed extremity of the burrow has learned to successfully discover the parasite.

A brief consideration shows the cause of failure and the reason why the vesicle does not contain the parasite. We do not find the parasite at the beginning of the burrow for obvious reasons. Next, the vesicle is an inflamed reaction to the irritant action of the parasite and whatever bacteria may have been carried into the skin by its presence. The formation of a vesicle from irritation and the process of bacterial growth is of course slow, and probably twelve hours or more elapse before a vesicle is formed. Within this passage of time the acarus has continued onward and the vesiculation follows behind it at a definite interval. The acarus is found at the outermost extremity because it is there it is actively burrowing. The acarus also is found immediately below the surface layers of the skin, because it is not a deep worker, and the skin is sufficiently translucent to show its whitish body shining through. Lesions on the abdomen and arms of patients, unless they be infants, do not show definite burrows, as the acarus probably does not remain long in these areas of tender skin but burrows in, feeds, and comes out and then seeks a new location. In thickened skin the labor of entry is greater, so that it chooses to remain in the happy hunting ground of its burrow. When the parasite is found in the vesicle it is probable that more than one parasite has been present or has been caught in a resting stage or has lingered to lay eggs or carry out its amours.

In summarizing, then, do not look for the *Acarus scabiei* in the vesicle, but only where the white dot demonstrates its definite presence at the end of its burrow. In the absence of a burrow the diagnosis is necessarily made on the symptomatology and the distribution of the lesions.

241 East Santa Clara Street.

PSITTACOSIS

By IRA B. BARTLE, M. D.
San Luis Obispo

THE State Board of Health has called attention to the existence of psittacosis in California. The following report may therefore be of interest:

REPORT OF CASE

CASE 5003.—Mrs. S., white, female, age fifty-one, weight about 187, height about five feet four and one-

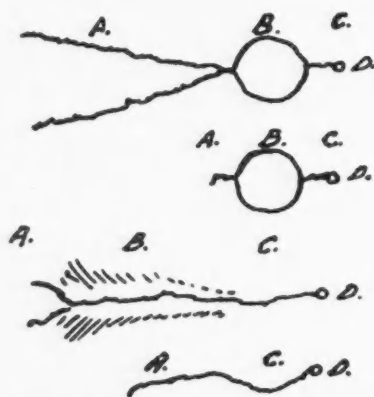


Fig. 1.—A. Old tract of entry. B. Vesicle or other type of reaction. C. Recent tract. D. Immediate position of acarus.

half inches, rather overnourished, with fat over the abdomen rather excessive.

In June, 1929, the patient suffered from an attack of backache which she described as lumbago. A small renal calculus of right side was passed at that time, and the lumbago cleared up. Urine: Specific gravity, 1030; acid; albumen and sugar, negative; acetone and bile one plus; many amorphous crystals; pus and blood cells one plus; some epithelial cells.

On May 31, 1929, the patient complained of feet swelling, and loss of energy. Urine: Specific gravity, 1027; acid; albumen and sugar, negative; microscopically negative.

Patient came under observation for the attack here reported on January 2, 1932. Patient complained of abdominal pains and diarrhea (seven or eight stools a day), some cough, some distress in lower left chest. Temperature, 103.6 degrees; pulse, 110 to 120; respiration, 24 to 30. Patient had been sick for two days, and had had a chill followed by increase in temperature and by distress in lower left lung. Apparently the diarrhea developed after a cathartic. The skin was moist, and patient complained of sweating. There was marked disturbance of the mental faculties, a low delirium, and the patient found it rather hard to collect her thoughts.

A working diagnosis of respiratory infection by one of the hemolytic group was made. Some moist râles and decreased respiratory and voice sounds, and a slight area of dullness in the lower left lung were noted. At the end of the second day the left lung cleared, but the same picture appeared in the middle lobe of the right lung, just external to the nipple. Temperature and pulse remained about the same, the temperature ranging from 100.6 to 104 degrees, and pulse 110 to 120. The spot in the middle lobe of the right lung cleared, but the upper lobe of the right lung again became involved. The course was not progressing satisfactorily.

As the patient was watched, it was difficult to explain why the patient was so seriously sick with so few localized symptoms. Widal and undulant tests were negative.

Upon entering the house to visit the patient on the first day, I saw a pair of love birds and asked if the birds had been in good health (as I have some birds at home and am rather fond of them). I understood the answer to be in the negative.

On further questioning, the following facts were brought out. The birds were bought from a peddler on December 5, 1931. One of these birds did not appear well, was gapping and dumpy. The next day the peddler took that bird back and gave her another bird. One of these birds died shortly, and was replaced through a local dealer. The peddler was peddling by hand, and claimed to have come off a boat at Avila. He was apparently an Australian. The patient's illness began on December 23, 1931, but through false sensitiveness did not tell me she had been under the care of another physician. We killed the two birds and sent them to the laboratory of the University of California.

Laboratory Report.—The report received January 14, 1932, was as follows:

"The examination of the two love birds owned by Mrs. S. has been made. One of the birds showed an enlarged, definitely fatty degenerated liver. Culturally, no organisms were demonstrated except streptococci in the spleen. We have taken some of this material and reinoculated it on other birds and mice. The second bird showed consolidation of the right lobe of the lung. Cultural findings revealed the Friedlander bacillus. Since it is difficult from postmortem examinations to diagnose the existence of psittacosis, we are dependent entirely on the reinoculation of the material which will take some time before we can report on the results thus obtained. In my opinion, bird No. 2 is probably not a case of psittacosis. Bird No. 1 might be considered suspicious, although other

infections may cause the same lesions." Signed, K. F. Meyer.

The following is a later report, dated January 27, 1932:

"On January 11 we received from you two shell parakeets or love birds, supposedly owned by Mrs. S. As previously stated, one bird showed an enlarged, fatty, degenerated liver, which was found to be culturally sterile. The reinoculation of this material produced typical psittacosis in rice birds. Passage through mice and the demonstration of typical L-CL-L bodies found in smears from the spleen support the diagnosis and leave no doubt that one bird at least died of psittacosis." Signed, K. F. Meyer.

A report dated February 1, 1932:

"I wish to thank you for your letter of January 27. The specimen of blood was received today and we will subinoculate it into other animals and make an agglutination test as well. Doctor Hazeltine and I concluded that this is probably a mild case of psittacosis." Signed, K. F. Meyer.

And a report from the University of California laboratory, dated February 4, 1932:

B. abortus, negative; *B. melitensis*, negative; *B. typhosis*, negative; *B. para A*, negative; *B. para B*, negative. Wassermann, negative.

In our own laboratory the blood culture was negative; sputum was negative for the bacillus of tuberculosis; urine was negative except for one plus acetone and a lowering of the chlorids, at the onset of the illness. On February 8, some pus, blood cells, bacteria, and many uric acid crystals were noted. Blood count on January 29: Red blood cells, 3,480,000; white blood cells, 15,300; hemoglobin, 75 per cent; polymorphonuclears, 72 per cent; small lymphocytes, 18; and large lymphocytes, 10.

On March 4, 1932: red blood cells, 5,000,000; white blood cells, 11,200; hemoglobin, 85 per cent. On January 29, 1932, the blood pressure was 140 systolic, 86 diastolic; weight was 159½, a loss of over twenty pounds. On March 4, 1932, the blood pressure was 160 systolic, 100 diastolic.

About January 10 the patient was put on quinin and a chlorin mixture, and there was marked improvement. The mental symptoms cleared, temperature dropped to normal, and pulse was 82 to 90. The appetite improved some, but the patient was very weak and had poor color. On January 29, a little fever showed, which ran from 100 to 101.08 degrees on February 3, but disappeared by February 5. There has been no subsequent rise in temperature. The recovery has been extremely slow.

The very marked relapse in this case shows a striking similarity to Case No. 3 in the Peterson, Spaulding, and Wildman's series, printed in the *Journal of the American Medical Association* of July 19, 1930.

722 Marsh Street.

The Function of the Graduate School of the Training of Specialists.—Proper survey of clinical material at the command of the medical school almost always reveals a considerable amount, the study and care of which is not properly a function of the student at the undergraduate level or of the intern preparing for general practice. I suspect that much of the deplorable tendency of so many medical graduates to rush early into the practice of medical specialties results from their enforced contacts as clerks and interns with clinical material which should be reserved for the training of specialists. Much also of the overcrowding of the undergraduate medical curriculum results from the cosmic urge of the specialists in the medical faculty to tell all they know, a desire which might be less harmfully if not more profitably granted if their efforts were directed toward graduate students of clinical specialties.—*Journal of the American Medical Association*, April 30, 1932.

BEDSIDE MEDICINE FOR BEDSIDE DOCTORS

An Open Forum for brief discussions of the workaday problems of the bedside doctor. Suggestions of subjects for discussions invited.

THE USE AND ABUSE OF CATHARTICS

M. S. WOOLF, M.D. (384 Post Street, San Francisco).—It is doubtful if there is a great deal of abuse of cathartics and laxatives among the medical profession. For one thing, elimination of the bowels must be obtained whether the cause is organic or functional obstruction. To such an extent is this true that in inveterate and intoxicating constipation, surgery has been repeatedly employed to alleviate the condition and operations such as appendicostomy, ileo-sigmoidostomy and even excision of the colon have been practiced. Specialists in medicine may be said even to have become timid rather than overwise in the use of medication which may be used to provoke evacuation of the intestinal tract. On the other hand, the general practitioner without time, facility or training to evaluate factors in producing constipation may possibly contribute to the abuse of cathartics. But the onus of the greatest abuse must be on the members of the general public, who, without knowledge of drugs of this kind, regard them as the only means concerned in satisfactory cleansing of the bowels. They do not distinguish either conditions appropriate or those inappropriate for their use. Inflammation of the intestinal tract or obstruction are often treated by an irritant such as castor oil, with sometimes disastrous results. And many of the laity are not aware that acute diarrhoea would be much more appropriately handled by the same castor oil in order to get rid in a patent bowel of material or irritating agent which sets up the diarrhoea.

I have said that it appears that specialists are somewhat reticent in using cathartics; in fact, they appear to postpone direct action on the intestine. Some confine their attention to lubricants of the intestine such as petroleum, which are often ineffective, leaving as they do around the feces and leaving these in almost the same state and consistency as they were. In addition, an unpleasant pruritus at the anal canal may be the result of long continued use of such evacuants. Moreover, used in a bowel that needs a stimulus, the oil coats the mucous membrane so that it does not so readily react to its normal reflexes. For a spastic condition of the colon where sedative action on the walls may be required lubrication of this kind may be very useful.

The saline cathartics are often misused. It is not a fact that in organic obstruction no laxatives may be given. Impeding acute obstructions may often be arrested and the bowel fairly well evacuated with a useful moderation of the edema, infection and inflammation produced by the disease. Epsom salts, sodium sulphate or phosphate are appropriate for this purpose, a large amount of fluid being attracted into the intestine by these

means, leaving and rendering the contents fluid enough to negotiate a sizable blockage. And again, these drugs have a final relaxing action on the musculature which is beneficial in such cases. At this point a warning may be issued against the use of these salines where depletion of fluid is not desired. If they are advisable, for example, in patients with decompensated hearts and in dropsical conditions of renal origin, so also are they to be avoided where fluids are lost extensively in other conditions, as in emaciation, fevers, excessive loss through the skin, kidneys, and lungs.

At first thought it might appear astonishing that so important, necessary and natural a function as elimination of waste by the intestine should be so problematical. But civilization has brought with it unnatural methods of living. We have perhaps not become used to our upright posture, so that malpositions of our internal organs, strain on their supports and vascular congestion are likely to be present. Daily existence has resolved itself into a life of high tension. Our pastimes are pursued as desperately as our work. Therefore, and, perhaps, most, are involved in these unrelaxed efforts our involuntary muscles through their nervous mechanism. Irritable and spastic colon is resulting—almost a new disease—due to the present age. Irregularities and the rush of meals with strange hours and stranger foods add to the confusion of the intestinal tract. Primitive peoples and untamed animals do not suffer from constipation as do the civilized races and domesticated animals. All this, if true, suggests that there are important adjuvants to the treatments of constipation by cathartics, which are mainly, relaxation, sleep, moderate exercise, regularity and natural diets and a more moderate strife in daily pursuits.

While the above conditions remain unaltered, laxatives or cathartics will be necessary and will continue to be largely used. The number and names of these laxatives are legion. They are as numerous as the tonics and there is no particular reason to be dogmatic on their use. It is, however, wise to estimate the type of colon before prescribing, although it is by no means true that a spastic colon, for example, must only have inert oils and a low-residual diet. Sometimes a bulky, as opposed to a "rough" diet with a mild laxative keeps the bowel actively enough evacuated. One may often think of cathartics as rather concentrated doses of those agents found in certain articles of our diet and mainly in fruits. One's personal preference might well be on this basis the vegetable laxatives.

Elimination from the lower bowel may be obtained by enemata from below in contrast to the use of laxatives from above. My experience leads

me to favor the latter for general treatment. I have seen much irritation produced by hospital orderlies and patients whose vigor has exceeded their caution. The mucous membrane may resemble after a determined effort to evacuate the bowels by this method, nothing so much as diffuse ulceration with desquamation and bleeding. The enema, if employed, should be of the blandest fluid, preferably normal saline solution, in fair quantities, say two quarts. It can only be effective if retained for several minutes and given with small positive pressure with the patient lying on his left side. The enema should be used for a final and rapid emptying of all the contents of the lower bowel. Otherwise, it is an unnatural method. It interferes with the normal peristalsis and renders the contents unnaturally fluid. A toxic coated tongue is not infrequently seen after its administration. Preoperatively no number of enemata can replace a well selected cathartic if the bowel can be evacuated at all safely. If the rectum itself is the operative field the ampulla should finally be cleansed on the operating table.

* * *

D. SCHUYLER PULFORD, M. D. (Sacramento, California).—Until both doctor and laity discard the use of "cathartics," chronic constipation will not be abolished. It is trite to say, "constipation is a habit." I would say, "Constipation is a cathartic habit." For the purposes of this discussion mineral oils, belladonna and agar are not considered as "cathartics." If one cannot establish normal bowel movements without the use of cathartics the patient is still constipated, and until cathartics are stopped the patient will remain constipated. The reason for this is that 98 per cent of all constipation is "spastic" in nature, due to the following factors:

(1) Increased nervous tension due to modern methods of living, such as high power work, lack of recreation and substituting the automobile for legs.

(2) Advertising quacks and druggists promoting the widespread use of cathartics.

(3) Too much roughage in one's diet.

"Atonic" constipation, to use an aphorism, occurs chiefly in text books.

Most all long standing constipation patients have an associated colitis, either with or without a diverticulitis. Cathartics help continue the colitis. Not only "left sided pain" but bloating, nausea, distension and many of the symptoms that go with "gas" are increased by cathartics and relieved by their removal if in conjunction with a regime such as outlined below. We might even go so far as to say that a person sick from any cause is often made worse by cathartics. Hypochlorhydria and gall-bladder disease are closely imitated by spastic colitis—usually on the diverticulosis and catharsis basis.

Treatment.—If it is bad to use cathartics, what substitute have we?

If most constipation is of the "spastic" type, not only are cathartics bad usage but "roughage"

should be eliminated from the diet until the spasm and the associated colitis have subsided. Too rough a diet at first stimulates motor activity of the bowel; and later, if forced, irritates and produces a colitis.

It has been my experience that long standing functional constipation patients respond promptly and, in the vast majority of cases successfully, to the following regime:

1. No cathartics.

2. Smooth diet.

3. Petrol agar, ounces one-half, one to three times a day.

4. Tincture of belladonna, minims 15, three times a day.

5. S. S. enema each morning as long as necessary.

The average response to this treatment will permit of the withdrawing of enemata in a week, cutting down the petrol agar to one dose a day the second week, and withdrawal of the tincture of belladonna about the end of the first month. A gradual introduction of roughage into a diet is started after symptoms of colitis disappear. It is often well to keep up the belladonna until the patient is satisfied that a cure is established.

It helps to inspire confidence in both patient and doctor if this treatment is preceded by a gastrointestinal x-ray series or colon enema x-ray to rule out organic obstructive lesions. But this is not essential as the above "regime" if successful rules out organic lesions. Finally, it must be remembered that psychotherapy plays a large rôle in the management of constipation, and that this is best applied through the medium of a careful physical examination, x-ray examinations and the teaching of a certain amount of the anatomy and physiology of the G. I. tract. It is well to remind the patient that it is only the material in the last foot of the large bowel that becomes hardened to act as a cork and that an enema to wash this out is not harmful and only necessary until the above regime starts to work. To those patients who think that life depends upon one or two large bowel movements a day it might be well to explain Alvarez's ingestion of colored bead studies in normal students which showed that it is not unusual for a week to elapse before food traverses from mouth to anus. The diagnosis of constipation based upon seventy-two hours barium retention is probably incorrect.

Summary.—1. The present widespread use of cathartics is to be condemned.

2. Ninety-eight per cent of all constipation is "spastic."

3. Chronic constipation with its associated colitis often stimulates hypochlorhydria, ovarian and gall-bladder disease, and even ulcer.

4. Chronic constipation requires a colitis regime.

5. In the cure of chronic constipation, the teaching of the normal anatomy and physiology of the intestinal tract building around x-rays of the patient's own stomach and bowels is a psychotherapeutic aid.

JOHN WILLIAM SHUMAN, M. D. (2007 Wilshire Boulevard, Los Angeles).—Cathartics, laxatives, physics and purgatives are numberless, ranging alphabetically from aloin to zeroline.

The habit of "taking something to make the bowels move" is so universal that the infant is too seldom permitted its first defecation of meconium without the artificial assistance of castor oil or enema. Long before the child can protest efficiently it has been "cascared, phenolaxed and salted." At no time was the long suffering intestine permitted to pass a normal non-liquid stool. In adolescence the lack of will to have a stool without a pill is further encouraged by parents, grandparents, quacks and near quacks. Hence manufacturers of patented diarrhea producing principles flourish and prosper.

Only a few evenings ago the three south windows of a drug store exhibited from left to right this bold advertising type: "Take Feenamint" (window No. 1); "Use Cascarets" (window No. 2), and "Snap Shot as You Go" (window No. 3)! The laity is so habituated to cathartics that surgeons have been heard to tell the patient three or four days before operation, "In order to open the bowels just take the dose and kind of cathartic you ordinarily use." A year ago the writer was in a modern first grade hospital for operation, and one of the attending surgeons ordered "a cathartic" for a patient. The floor nurse brought in a large tray of "foreign material" from which to choose, exactly as though it were French pastry.

Most adults become constipated when put to bed, the result of careful training in their youth—full days.

Ninety per cent of so-called constipation is imaginary. The normal stool should be well formed, not liquefied. The stools of different individuals vary as to appearances. Habits vary greatly. With some it is perfectly normal to stool two or three times a day—with others, once every alternate day. However, there are some who feel that they have diarrhea if their bowels move more than once a week!

The average parent physics a child for headaches when the same may be due to eye strain; for a cold in the head and chest, when the intestinal canal is not ill; yes, and for stomach ache when gut obstruction, appendicitis or something just as grave is present and when a disturbance by cathartics may bring death dealing complications.

The layman takes cathartics for pimples, when thorough cleansing of the skin is essential. For gall, kidney and intestinal colics, when only the surgeon's knife will cure. And for head, back and limb pains which are caused by infection (not of the gut).

The Congo native begs the missionary for two, preferably three compound cathartic pills—eats until his stomach holds no more, climbs the tallest tree he can find—takes the pills and then roosts out on a limb until results. This typifies in a milder manner many of our own countrymen who go elax through Chick Sales-manship.

There is a time for purging, for example, when one is waterlogged from heart and kidney failure. When the average person takes a cathartic, he wants to see action—copious thin watery stools. Result: irritation of already weakened bowels. Normal soft formed stools are far better.

Acute Respiratory Infections.—Noble and Brainard studied the anaerobic bacteria found in the filtered nose and throat washings of fourteen persons with colds, and eleven normal persons. The ordinary aerobic flora, which may grow anaerobically and obscure some of the more slowly growing anaerobes, was removed by using Berkefeld filters of the coarser grades. This procedure also removed anaerobic gram-negative cocci of the gazogenes type, which were found previously to be normal flora. Many anaerobic bacteria were isolated from the filtrates. Most of these were gram-negative, but there were a few gram-positive forms. The authors studied 114 strains, seventy-three being grouped tentatively according to their agglutinative reactions. The gram-positive flora, isolated from one patient with acute catarrhal coryza, consisted of two strains of bacilli, identical culturally and agglutinatively, and one strain of cocci. The gram-negative flora was much more numerous, a search disclosing minute cocci and bacilli of different sizes and forms. The cocci were similar culturally, but of four groups agglutinatively. The bacilli were even more heterogeneous, falling into several cultural and agglutinative groups; all were distinct from bacterium pneumosintes, which could not be found. These groups were distributed with approximately equal frequency among both normal control subjects and persons with colds. As to the significance of these observations, the fewness of strains of the gram-positive group and their demonstration in only one subject would weigh against their primary etiologic relationship. The almost universal occurrence of the gram-negative cocci and their innocuousness when injected into rabbits would indicate that they are normal saprophytic flora. The heterogeneity of the gram-negative bacilli, the approximately equal distribution of their groups among normal subjects and persons with colds, and the absence of epidemic strains would make it unreasonable to assign a causative rôle to any one of these organisms, even though it is apparent that pathogens exist among them.—*Jour. of Prev. Med., and J. A. M. A., Vol. 98, No. 22.*

Incidence of Nodules in Thyroid.—According to Rice, nodules occur as frequently in the postmortem thyroid that is assumed to be physiologically normal as in hyperfunctioning goiter operatively removed. The greater prevalence of colloid nodules in the post-mortem thyroid may be due to the fact that differences in the degree of reversion, growth, differentiation and encapsulation have not been forced on the normal gland as strongly as they have in the toxic goiter. Multiple nodules are not found more frequently in hyperfunctioning goiters than they are in physiologically normal thyroids. Nodules are found in 56.95 per cent of the physiologically normal thyroids and in 57.14 per cent of the toxic goiters. Forty-two and eighty-five hundredths per cent of the toxic goiters have no nodules and are manifested as exophthalmic goiter. Thirty-five per cent of the thyroids that become hyperfunctioning can be classified as adenomatous goiter with hyperthyroidism. The remaining 22 per cent of glands contain nodules but manifest their hyperthyroidism as exophthalmic goiter. Diffuse hyperplastic goiter (exophthalmic goiter) occurs proportionately as frequently in glands with nodules as in glands without nodules. Lymphocytic foci are found more often in hyperfunctioning goiters than in normal thyroids. From these observations it appears that the presence of nodules in the thyroid is physiologically normal and that the incidence is not appreciably altered by the development of hyperthyroidism.—*Archives of Surgery.*

California and Western Medicine

Owned and Published by the
CALIFORNIA MEDICAL ASSOCIATION
Official Organ of the California and Nevada Medical Associations
 FOUR FIFTY SUTTER, ROOM 2004, SAN FRANCISCO

Telephone Douglas 0062

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Advertising Representative for Northern California
 L. J. FLYNN, 544 Market Street, San Francisco
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Subscription prices, \$5.00 (\$6.00 for foreign countries);
 single copies, 50 cents.

Volumes begin with the first of January and the first of
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EDITORIALS*

THE STATUS OF CALIFORNIA COUNTY HOSPITALS

Undesirable Activities and Scope of Some California County Hospitals.—Certain undesirable features which have crept into the county hospital picture of California were early noted by discerning members of the profession. For some years these evils have been the subject of earnest discussion at meetings of the California Medical Association Council. The encroachments on medical practice, brought about by the seemingly illegal and over-paternalistic activities of some of the county hospitals, were promptly recognized by the officers of the State Association and the desirability and necessity of opposing them duly appreciated.

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Difficulties Met With in Trying to Abate County Hospital Evils.—The proper course of action to be followed to bring about an abatement of the evils was, however, a most difficult thing to decide upon. A mistake in procedure might not only lead to failure in adoption of proper reme-

* Editorials on subjects of scientific and clinical interest, contributed by members of the California Medical Association, are printed in the Editorial Comments column, which follows.

dies, but could easily make matters worse. It should be clear to all that the laudable and altruistic efforts on the part of the State to help those indigent citizens who at the same time are so unfortunate as to be sick or injured, and who need professional and institutional care to permit their return to health and useful economic citizenship, present a situation in which much harm can be done to the medical profession, unwise procedures are advocated in regard to county hospitals and similar institutions.

A conflict has arisen, not concerning the deserving patients in such institutions, but over those citizens who seemingly have no right under California law, as applied through its pauper act, to receive care in such institutions. The difficult task has been to find ways and means whereby such undeserving citizen patients may be prevented from entering county hospitals, without bringing down upon the profession the ill will of the public press and the lay public.

* * *

Conditions Which Favored the Introduction of Certain County Hospital Evils.—As one looks back at the development of the situation which exists today in some of the county hospitals of California it is evident that the hurly burly associated with the social and economic turmoil, that was so much a part of the days of the Great War and of its postbellum days up to our present time, gave a background in which certain county hospital evils easily came into being. Moreover, it must be recognized that during the war days, and in the optimistic economic years which followed up to 1929, citizens in all walks of life were so busy with their own prosperity adventures that little heed was given to non-personal controversial studies and activities. It is readily understood how under such conditions, through excessively liberal interpretation of the California pauper act, county governmental agencies improperly extended the scope of California county hospitals. As a consequence, the lay citizenship and the medical profession of California are today confronted with an extremely interesting public health problem, with confusing and serious aspects, both legal and economic, as well as medical. Earnest study, careful analysis and clear thinking are now very much needed if conditions are to be improved.

* * *

The Supporters of County Hospital Evils Are Now Well Entrenched.—It is regrettable that certain evils in the county hospital situation of California should have developed so rapidly and that the medical profession must now face organized and powerful opposition in its efforts to bring about a betterment of conditions. It is fortunate, however, that the problem has economic aspects of such magnitude as to have already enlisted the attention of lay organizations which are interested in the material resources and advancement of the State. It is possible that in coöperation with such agencies we may be able to decide upon measures

which will lead to an elimination or at least a stoppage in the development of certain of the county hospital mal-activities. That is one of the hopeful signs on an otherwise rather uninviting county hospital horizon.

* * *

The Article by J. M. Peirce in the Department of Public Relations Column.—The attention of all readers of this journal is called to an article in the present issue in which "The Status of California County Hospitals" is discussed by John M. Peirce, M. B. A., economist of the California Taxpayers Association. This contribution is printed in the Department of Public Relations column (page 204).

In that article Mr. Peirce presents some illuminating figures and comments. Especially interesting is the table compiled from the *Journal of the American Medical Association* hospital number showing the number of patients respectively treated in tax-supported and private hospitals in forty-three California counties. The facts and figures presented explain why every county medical society in California should give a portion of one of its September programs to a consideration of this paper, both in its general relationships and in its applications to its own county. It is also apparent why every county medical society committee on county hospital and associated institutions and activities should be more than a figurehead committee. Every such committee should obtain a copy of the last annual report of its own county hospital and have at least a first hand knowledge of the scope of the activities of the institution, the economic resources of the patients admitted, the complexion of its resident and attending staffs, the extent to which political or other detrimental influences improperly enter into the management of the institution, as well as of other matters of medical, economic and social interest. When such reports are presented to the county societies, provision should be made for proper discussion. A copy of each report should be sent to the California Medical Association Department of Public Relations because the State Association needs accurate and comprehensive data concerning every one of the county hospitals of California.

* * *

Some Interesting Excerpts from Mr. Peirce's Article.—Mr. Peirce in his paper calls attention to the fact that

"... Whereas last year the 313 private hospitals in the state cared for an average of 10,873 patients, the 67 county hospitals cared for an average of 10,034 patients or 49 per cent of the total. Thus, nearly half of our population is dependent upon charity when in need of hospital care."

The California pauper act, concerning which considerable has been printed in the past in this journal,* is also discussed by Mr. Peirce, and he

calls attention to an improper application of that act in the following paragraph:

"... The state law governing the responsibility of the counties in connection with the dependent poor is known as the 'Pauper Act.' In the strict meaning of the word, an indigent or pauper is a destitute person, having neither money nor a personal source of money. Yet, it is common knowledge that counties do not limit hospital admissions to paupers. Because of a vague definition of the word 'indigent,' much unwarranted use of county hospitals exists."

One other quotation from this article by a layman may here be given for emphasis:

"... The fact still remains, however, that the taxpayers are providing free care for nearly half of our general hospital population. Obviously, this proportion is too great, and only because of laxity in admitting patients to county hospitals has this condition been allowed to develop. Not only has it placed a substantial burden on the taxpayers, but the practice deprives private hospitals and practicing physicians and surgeons of patronage to which they are entitled.

"During the extended period of prosperity which culminated in October, 1929, our citizens appeared largely indifferent to abuses such as these. Everyone seemed to be prosperous enough to ignore the rising tide of taxation. Governmental services were expanded and costs mounted. The burden grew, but the public appeared quite able to carry it. Conditions have now changed, however, and we find it necessary to scrutinize each and every dollar more closely. Thus, the cost of our county hospitals is a matter of grave concern to the taxpayer, not from the standpoint of evading a social responsibility, but rather with the view of eliminating the abuse to which these institutions have been subjected. ..."

As already stated, it is hoped that all readers of CALIFORNIA AND WESTERN MEDICINE will take the time to read and think about Mr. Peirce's analysis of certain phases of California county hospitals. It is also hoped that members of county medical societies in California will insist on a discussion of this important and complicated problem at early meetings. Suggestions and information from county societies concerning their county hospitals will be gladly welcomed by the California Medical Association Department of Public Relations. That newly organized department of the California Medical Association can only function to best advantage when it has the full coöperation of the component county medical societies. It is earnestly hoped that such coöperation will be generously given. The county hospital situation in California can be clarified and improved if all county medical societies will accept their responsibilities in the solution of that problem by study of their local conditions and reporting thereon as above indicated.

CUBAN DOCTORS ON STRIKE

That Seemingly Impossible Event, "A Doctors' Strike," Becomes a Reality in Cuba.—The caption "Cuban Doctors on Strike" appeared in the *Los Angeles Times* of August 17 last, at the heading of a dispatch from Havana. The article is reprinted in this number of CALIFORNIA AND WESTERN MEDICINE (page 207), because it presents a concrete example of a suggestion not infrequently heard in recent years when the activities

* Editor's Note.—California and Western Medicine of March, 1931, page 219, prints some interesting information concerning California laws and activities having a relationship to the Pauper Act.

of certain county hospitals in California have been under discussion. We have always waived aside the plan of a strike because of our belief that such an effort, no matter how justified, if attempted anywhere in the United States, would probably do more harm than good and fail of its purpose. It is interesting to note that in another part of the world, namely in Cuba, such a "doctors' strike" has actually occurred. It is to be hoped that future news dispatches will inform the American medical profession of the ultimate results of this new foreign flare in medical economics.*

* * *

"Cuban Health Insurance Societies" Were Discussed in the February California and Western Medicine.—Readers of this JOURNAL may recall that in the February CALIFORNIA AND WESTERN MEDICINE (page 116), were printed some comments under the heading: "Health Insurance Societies in Cuba—Pseudo State Medicine, and with a Vengeance." Those comments were based on the editor's observations of Cuban "health societies" and of the Cuban Medical Federation on a visit he made during the recent Christmas holidays. An article in the same issue, pages 139-141, was illustrated with exterior and interior views of one of the Havana health association "palaces."

The importance to American organized medicine of having accurate information concerning the Cuban health associations, and of the deplorable conditions existing in Cuban medical practice, led the California Medical Association to present at this year's New Orleans meeting of the American Medical Association some resolutions dealing with that subject. In those resolutions (page 253 of the April CALIFORNIA AND WESTERN MEDICINE), the American Medical Association was requested to have a survey made of Cuban medical practice and health associations and to disseminate the information so collected among the constituent state medical associations. At the time the editor wrote his observations he had little thought that the tension existing between the Cuban Medical Federation and the health insurance societies of that country would manifest itself at so early a day in "a doctors' strike," although some of the Cuban colleagues stated to him that, if conditions could not be improved otherwise, a "strike" might be a necessary consequence.

* * *

Cuban "Health Insurance Societies" Would Not Compromise.—The conditions which existed in December last, and which were discussed in the February CALIFORNIA AND WESTERN MEDICINE, evidently became more acute during this present year. The dispatch states:

"Inability to arrive at a satisfactory solution following six weeks of bitter controversy resulted in the strike."

The strike evidently precipitated a situation so acute as to lead to prompt recognition and inter-

vention by the Cuban Government, as witness the following paragraphs:

"President Machado tonight decreed immediate government intervention in the strike today. Octavio Zubi-Zarotta, Secretary of the Interior, was ordered to take steps to assume control of all private Spanish regional associations and medical institutions.

"Zubi-Zarotta ordered the Secretary of Sanitation, Carlos D. Cespedes, to appoint government physicians to replace strikers so that patients' lives will not be endangered.

"The President sent an urgent message to directors of the Medical Federation demanding that the physicians return to their posts immediately and promising government arbitration and settlement within seventy-two hours."

* * *

Governmental Intervention and Promise of Arbitration Probably Called Off the Strike.—In an evening Los Angeles paper of August 17 appeared a dispatch under the heading "Cuban Doctors Back at Work," one paragraph of the text reading as follows:

"Havana, Cuba, Aug. 17.—Physicians who called a strike of doctors in six cooperative society clinics on Monday night relented today and returned to their posts temporarily, pending efforts to settle the controversy."

* * *

Organized Medicine in Cuba and America Face Different Environments.—The conclusion to be drawn from the above later dispatch is that the Cuban Medical Federation probably accepted President Machado's offer of arbitration and prompt settlement of the issues in dispute.

For those who would be tempted to invoke similar action in America, it is well to remember, as was stated in the February editorial comments, that practically every physician in Cuba is a member of the Cuban Medical Federation, and that the organization seemingly has much greater disciplinary power than exists in medical organizations of the United States. The official journal of the Cuban Medical Federation prints stenographic reports of all meetings of the board of directors of the organization, so that members of the Federation are as familiar with the issues under discussion, and the future steps contemplated, as are the directors themselves. The existence of such conditions in part explains why the Cuban Medical Federation was able to take its somewhat drastic action. Perhaps a real betterment of medical practice conditions in Cuba will be the result.

In the interest of medical organizations in the United States, it is to be hoped that the Board of Trustees of the American Medical Association has or will authorize the collection of adequate information on the Cuban medical situation. Through such facts the physicians of the United States will be able properly to orientate themselves in regard to the health insurance and medical practice problems in question and thus be in position more promptly to recognize American tendencies in similar directions. To be forewarned is to be forearmed.

* As this issue of California and Western Medicine goes to press, comment on the Cuban medical situation is noted in the JOURNAL A. M. A. of August 27, page 765.

MEDICAL FEE SPLITTING IN NEW YORK

The Governor Roosevelt-Mayor Walker Discussion of a Problem in Medical Ethics.—For many years the subject of medical fee splitting has been given considerable attention in committee reports of county, state and national medical organizations. Much space also has been given in the medical press to committee and other reports, and to articles on the subject. The American College of Surgeons, when it came into existence in the year 1913, laid down as one of its qualifications for membership a signed statement from each candidate that he would not engage in fee splitting. Many medical societies and attending staffs of hospitals have somewhat similar requirements. The subject is therefore an old one to members of the medical profession.

But with all the above publicity, it may be affirmed that the subject of fee splitting never broke into the public press in such intensity, and in connection with a newspaper topic of such general public interest, as it did in the Governor Roosevelt-Mayor Walker hearing on August 17, in Albany, New York.

* * *

What Will Be the Effect of the Testimony Submitted?—We have no desire to become involved in a discussion of the merits or demerits of the political issues in the above referred to hearing. Nevertheless, for those readers who failed to note this particular testimony, as given in the news dispatches, the excerpts printed below may be of interest. The testimony in this cause celebre has been followed by hundreds of thousands of newspaper readers. It is certain to have a certain amount of educational influence on the laity. As time goes on, the repercussions of the testimony about division of fees will no doubt be noticed in the lay press, in legislative halls and other places. In the meantime members of the medical profession can ask themselves what influence they believe the questions and answers in the following excerpts will have on future lay opinion in these matters. The excerpts follow:

"Q. (By Governor Roosevelt.) But do you consider the splitting of fees among doctors in city cases a proper practice? A. (By Mayor Walker.) It depends upon the circumstances. . . .

"Q. Don't you think it would have been a natural thing for you to do, with your brother charged with splitting fees, to order an investigation? A. I don't know whether, of itself, that splitting fees is wrong.

"Q. Do you think such fee splitting was proper ethics? A. If the city was not defrauded and the doctors had an arrangement to split up their work and divide the fees accordingly, I don't see anything unethical about it."

Irradiation of Mammary Cancer.—Lee and his associates state that preoperative external irradiation for mammary carcinoma is of value, as is proved by (1) the occasional regression of tumors so treated; (2) the histologic changes produced, and (3) the better clinical end-results. An efficient devitalizing dose cannot be delivered by external irradiation alone. To deliver an efficient dose one must use interstitial irradiation. The tissue dose delivered to the tumor should be measured and expressed in skin erythema

units. This dose should be prescribed. Tables prepared in the physical department enable the clinician to translate into terms of skin erythema units the tissue dose delivered, whether by external or interstitial irradiation. The universal tissue dosage necessary to effect destruction of a radioresistant mammary cancer approximates twelve skin erythema doses. The safest procedure is to treat all patients with mammary cancers with the same sufficient dose, because (1) radiosensitivity cannot always be determined before operation, and (2) the same tumor may contain radioresistant and radiosensitive areas. Mammary cancers vary markedly with respect to radiosensitivity. The mammary gland will tolerate safely an enormous dose of interstitial irradiation. The possible menace of dissemination of the disease by the method of interstitial irradiation is considered. The authors have not seen evidence of such a dissemination in this series. Preliminary external irradiation lessens this possibility. All preoperative irradiation should be given within three weeks or less time. Six weeks should elapse following interstitial irradiation before radical amputation is performed. An interval of six weeks is necessary, because after this interval (1) the effects of irradiation are complete; (2) complete destruction of the tumor is accomplished, and (3) wound healing is unimpaired. The authors' present treatment for primary operable mammary cancer is external irradiation, then interstitial irradiation and finally radical amputation six weeks later. The axilla is irradiated by (1) preoperative roentgen rays or radium element pack, followed by (2) interstitial gold-filtered radon distributed along the lymph-node-bearing areas. The pathologic changes produced in mammary cancer by external irradiation are mainly due to vascular effects. There are moderate hydropic swelling of the tumor cells, moderate atrophic degeneration, marked collagen swelling, productive arteritis with thrombosis and calcific deposits in the vessel walls and productive fibrosis. The changes produced by interstitial irradiation are mainly direct effects on the tumor tissue, namely, ballooning degeneration, hydropic swelling, giant nuclei and atypical degenerative mitoses, a tendency toward squamous metaplasia followed by sloughing, hemorrhage, infiltration by fatty macrophages with ensuing extensive calcific deposits, often acute capillary necrosis with resultant tumor necrosis, squamous metaplasia of normal adjacent lobules in the breast, collagen swelling, productive fibrosis and late atrophy of the residual tumor.—*Archives of Surgery*.

Metaphen-in-Oil in Pulmonary Cavitation.—Jacobs believes that collapse therapy and thoracoplasty constitute the only rational treatment in the management of pulmonary cavitation. In the far advanced and inoperable cases, external drainage should be encouraged. This can be accomplished by intrapulmonary medication with different drugs dissolved in oil, which should be followed by postural drainage. With this method, the expectoration is mechanically facilitated and reduced. The cough is diminished and the temperature, pulse and respiration are greatly improved. Thus far in the author's experience, metaphen-in-oil, 1:5000 solution, has proved to be the best available agent. It has antiseptic properties, and it is nontoxic and nonirritating.—*American Review of Tuberculosis*.

Adenoidectomy.—Hill calls attention to the fact that while adenoidectomy is a simple procedure it is more difficult to achieve a clean result in that operation than in tonsillectomy. This is due to a tendency to hurry through this part of the combined operation, to the handicap of the bleeding, to dull instruments and to the difficulty of working in a blind space. Visual inspection of the nasopharynx will reveal many tags and remnants and will expedite their removal; it should be employed as a routine measure.—From the *Archives of Otolaryngology*, Chicago, in *Journal of the American Medical Association*, February 27, 1932.

EDITORIAL COMMENT

This department of California and Western Medicine presents editorial comment by contributing members on items of medical progress, science and practice, and on topics from recent medical books or journals. An invitation is extended to every member of the California and Nevada Medical Associations to submit brief editorial discussions suitable for publication in this department. No presentation should be over five hundred words in length.

Homeopathy and the Landsteiner Phenomenon.—One could paraphrase the familiar "*similia similibus curantur*" of Hahnemann by the postulate that, in proper doses, "each and every symptom-producing drug acts as a heterophile, symptom-specific vaccine, increasing personal resistance to each and every pathogenic factor of the same symptom-specific group."

Thus far, American immunologists have shown no interest in this early Victorian prototype of their logic, due to the fact that they have failed to obtain convincing experimental evidence that noncolloidal pharmacodynamic agents are demonstrably antigenic. The recent development of new immunologic techniques by means of which numerous simple noncolloids are apparently raised to full antigenicity, however, may conceivably broaden the field of modern immunological research to include numerous pharmacodynamic crystalloids. These crystalloid techniques arose from the well-confirmed observations by Landsteiner and his colleagues¹ that numerous apparently nonantigenic crystalloids (*e. g.*, phenylacetic acid) may acquire demonstrable humoral antigenic powers, if united chemically with a protein "carrier." The protein-crystalloid complex injected into laboratory animals leads to the development of a duplex antiserum, one part of which acts as a crystalloid-specific fractional precipitin (or precipitin variant). With this "fractional antibody," the crystalloid can be identified either in the free state or when combined with a protein "carrier." This identification is made with the same ease and certainty that *B. typhosus* can be differentiated from the colon bacillus.

The suggested application of the Landsteiner conjugation technique to a serological verification of the basic tenet of homeopathy is, of course; but one of the numerous, apparently feasible, clinical applications of the new "crystalloid immunology."

Stanford University.

W. H. MANWARING,
Palo Alto.

Control of Diuresis Through Narcotics.—

It was pointed out in 1886 by von Schroeder that morphin opposed caffeine diuresis in animals, but little attention was given to the subject of the control of urinary formation by centrally acting drugs until interest was revived by E. B. Pick and his collaborators in Vienna less than a decade ago.

¹ Landsteiner, K., and van der Scheer, J.: J. Exper. Med., 48:315 (Sept.), 1928; 54:295 (Sept.), 1931.

The Viennese pharmacologist noted that merely restraining unanesthetized animals markedly decreased diuresis produced by water, but that if such animals were decerebrated, and allowed to recover from the operation, water diuresis was not altered by handling of the animal. This led them to test out various depressants of the central nervous system, with the discovery,¹ confined by Godlowski² and very recently by Nyary,³ that paraldehyd and chloral hydrate augment water diuresis, while phenobarbital (luminal) and chlorbutanol (chloretone) oppose the diuresis. Barbitol has an intermediate effect. Nyary has demonstrated further a paradoxical effect of phenobarbital in that it favors, rather than opposes caffeine diuresis. Bonsman⁴ and Fee⁵ have confirmed the early observations of von Schroeder regarding morphin.

From his experiments with normal and decerebrated animals, Pick concludes that diuresis is controlled by a subcortical center located probably in the hypothalamus. With this assumption, he can divide narcotic drugs into those acting on the cerebral cortex, to remove inhibition of the diuretic center (paraldehyd, chloral hydrate) and those affecting the brain stem (phenobarbital, chlorbutanol). Such a classification is not new, but it still lacks the sufficient support for its general acceptance.

The subject has important practical implications which should be tested out extensively. We are in almost complete ignorance of the effect of these drugs upon diuresis in the human. It is not infrequent that morphin is administered to patients undergoing treatment with diuretic drugs, as in cardiac edemas, yet we have practically no accurate information as to whether the morphin antagonizes the effect of the diuretic. The possibility that strychnin, atropin and phenobarbital, as used in the treatment of enuresis, may affect urine formation, as well as bladder control, is suggested by the experiments of the Viennese workers. The whole subject is a field wide open for clinical investigation.

Department of Pharmacology,
University of Southern California.

C. H. THIENES,
Los Angeles.

¹ Molitor, H., and Pick, E. P.: Blochem. Zeit. 186:130, 1927.

² Godlowski, W. J.: Arch. Exp. Path. Pharm., 156:85, 1930.

³ von Nyary, A.: Arch. Exp. Path. Pharm., 162:565, 1931.

⁴ Bonsman, M. R.: Arch. Exp. Path. Pharm., 156:160, 1930.

⁵ Fee, A. R.: Jour. Physiol., 68:39, 1929.

C. M. A. DEPARTMENT OF PUBLIC RELATIONS

An open forum for progress notes on the department's activities, and for brief discussions on medical economics. Correspondence and suggestions invited. Address Walter M. Dickie, Room 2039, Four Fifty Sutter Street, San Francisco. This column is conducted by the Director of the Department.

The Status of California County Hospitals—Are They Escaping Normal Bounds*

By JOHN M. PEIRCE, M. B. A.
Los Angeles

In California the care of the indigent sick and injured is the legal responsibility of the counties. Sixty-seven county hospitals and sanitariums are operated for this purpose at an annual cost of over \$15,000,000. These institutions maintain approximately 12,800 beds; and last year an average of 10,034 patients were in residence within their walls. The sizes of these hospitals range from five beds in the smallest county to 1,564 in the largest county.

MAGNITUDE OF TAX-SUPPORTED HOSPITALS

The magnitude of these tax-supported institutions can better be gauged by comparison with hospitals maintained by private associations, churches and other agencies. Whereas last year the 313 private hospitals in the state cared for an average of 10,873 patients, the 67 county hospitals cared for an average of 10,034 patients or 49 per cent of the total. Thus, nearly half of our population is dependent upon charity when in need of hospital care.

THE SITUATION IN CALIFORNIA

The accompanying tabulation presents detailed statistical data on each of forty-three California counties. The average number of hospital patients in each of these counties is shown, together with the number of patients per 1,000 population. The most interesting figures, however, are contained in the last two columns, showing the distribution of patients as between tax-supported hospitals and private hospitals.

That someone must care for the unfortunate cannot be questioned. It is one of our greatest social responsibilities and we must expect to meet it. Grave doubt exists, however, over the matter of deciding who shall qualify as subjects of charity. The state law governing the responsibility of the counties in connection with the dependent poor is known as the "Pauper Act." In the strict meaning of the word, an indigent or pauper is a destitute person, having neither money nor a personal source of money. Yet, it is common knowledge that counties do not limit hospital admissions to paupers. Because of a vague definition of the word "indigent," much unwarranted use of county hospitals exists.

The average American family, for example, being supported from the income of a wage-earner, is gener-

*The Taxpayers Association of California, in its investigation on county hospitals, has given the medical profession a great deal of valuable material for thought and study. The use of county hospitals in the last few years has grown to the point where 49 per cent of the hospitalization of the state is cared for in public institutions.

Merced County, with a population of 29,000, has 85 per cent of the hospitalization cared for in the county hospital, while Kern County, with a population of 82,570, cares for 78 per cent of the hospital cases in the county hospital. Many county hospitals now charge patients who can afford to pay. In other words, the county hospital of the past is rapidly becoming a community institution.

The physician who gives his services free in these institutions is beginning to find that he is called upon not only to care for the indigent patient but for those who can afford to pay for private hospitalization. How long before the doctor will find his own private patients in public hospitals expecting free medical care?

For additional discussion of hospital costs, see pages 199 and 214.

ally able to afford moderate luxuries such as an automobile, a radio, confectionery, tobacco, cosmetics, and theater entertainment. Because of this fact, such a family cannot be considered as indigents or paupers. Yet, when this family requires hospital care, it appears quite proper for it to seek admission to the county hospital to be cared for at public expense and to receive free professional service from local physicians and surgeons who donate their services to charity cases.

HOW COUNTIES DIFFER

Counties differ in their attitude toward the dependent poor. Some are so liberal in their expenditures for this purpose that indigents from neighboring counties, other states and even foreign countries, soon become attracted to the locality, explaining that they have come because this or that county is "so good to the poor." Not only does this generosity encourage migration of genuine indigents, but it invites local residents to seek admission to tax-supported hospitals, whether or not they are indigents in the true meaning of the word.

Other counties, however, are less generous in their expenditures on charity and as a result their hospital facilities are very mediocre. In fact, approaching the opposite extreme, some maintain institutions that are hardly fit for use as hospitals.

Regardless of the quality of charity service rendered, county boards of supervisors are indeed faced with a dilemma in this connection. If they do not provide adequate care for the dependent poor, they will be subject to criticism from a humanitarian standpoint; whereas if they provide luxurious care, they invite criticism because of extravagance in the use of public funds.

BURDEN ON THE TAXPAYERS

The fact still remains, however, that the taxpayers are providing free care for nearly half of our general hospital population. Obviously, this proportion is too great and only because of laxity in admitting patients to county hospitals has this condition been allowed to develop. Not only has it placed a substantial burden on the taxpayers, but the practice deprives private hospitals and practicing physicians and surgeons of patronage to which they are entitled.

During the extended period of prosperity which culminated in October, 1929, our citizens appeared largely indifferent to abuses such as these. Everyone seemed to be prosperous enough to ignore the rising tide of taxation. Governmental services were expanded and costs mounted. The burden grew but the public appeared quite able to carry it. Conditions have now changed, however, and we find it necessary to scrutinize each and every dollar more closely. Thus, the cost of our county hospitals is a matter of grave concern to the taxpayer, not from the standpoint of evading a social responsibility, but rather with the view of eliminating the abuse to which these institutions have been subjected.

WHY COUNTY HOSPITALS HAVE ESCAPED THEIR BOUNDS

An interesting question arises in connection with the county hospital situation. Various groups offer explanations, each presenting a slightly different reason. Upon analysis, however, it appears that no single factor has been responsible, but rather a combination of factors. The following may constitute at least a partial list of the reasons why county hospitals have in recent years escaped their normal bounds:

- 1. Indifference on the part of the taxpayers toward the rising cost of county hospitals, thus making available to these institutions a more generous source of revenue than would otherwise be the case.
- 2. The occasional practice of our public officials using county hospitals for political patronage.
- 3. The ambition of county hospital executives to administer attractive institutions which in turn eliminate much of the stigma attached to charity.
- 4. The tendency of physicians and surgeons to demand expensive facilities in county hospitals as a courtesy to them in return for the donation of their services. Elaborate facilities obviously attract a wider range of patients.
- 5. The indifference of private hospitals in connection with the increasing competition of tax-supported hospitals.
- 6. The absence of a satisfactory financial plan to accommodate the needs of the middle class, who are neither able to afford costly hospital care, yet not strictly eligible for charity.

WHAT OF THE FUTURE?

The status of many of our county hospitals has thus reached the point where they are no longer institutions for the exclusive care of the dependent poor, but rather community hospitals supported almost entirely by taxation. Not only are they straining the public purse, but they are encroaching upon private enterprise to an alarming extent. Indifference accompanying prosperity no doubt has been largely responsible for this condition, but with the coming of financial adversity a change in attitude must be expected,

not one which will be detrimental to the unfortunate but rather one which will help correct an abusive use of our system of public charities.

Veterans' Hospitals—A Minnesota Plan and Resolutions

As a result of numerous conferences in different parts of the country between the representatives of the American Legion, the American Legion Posts, the American Hospital Association, the American Medical Association, and the Veterans' Bureau, it is believed that the existing plan for care of disabled veterans, especially the nonservice connected cases, is unfair to the veterans, especially in acute emergency cases when the veteran is taken acutely ill at his home, and should be changed to allow these cases to be cared for in their home town.

After an intensive study of this situation it has been clearly demonstrated that for many reasons, as stated below in the resolution, it would be advisable to change our present law regarding hospitalization and care of emergency cases as suggested in the "Minnesota Plan."

First, we, as members of the ex-service men's organization, wish to obtain prompt and efficient hospital and medical care for all veterans entitled to the same. Secondly, we realize that this should be done in the most economic way possible. We feel that the existing local hospitals should care for acute and emergency cases and that the present veterans' hospitals should care for the veterans suffering from war-con-

TABLE 1.—Patients in Tax-Supported and Private Hospitals in Forty-three California Counties—Year 1930*

Counties	Average Number of Patients			Patients per 1,000 Population			Per Cent of Total	
	Tax-Supported	Private	Total	Tax-Supported	Private	Total	Tax-Supported	Private
Alameda	966	918	1,884	2.03	1.93	3.96	51.27%	48.73%
Amador	4	5	9	0.47	0.59	1.16	44.44	55.56
Calaveras	6	4	10	1.00	0.67	1.67	60.00	40.00
Colusa	34	5	39	3.31	0.49	3.80	87.18	12.82
Contra Costa	160	84	244	2.04	1.07	3.11	65.57	34.43
Del Norte	10	5	15	2.11	1.05	3.16	66.67	33.33
Eldorado	34	14	48	4.08	1.68	5.76	70.83	29.17
Fresno	493	188	591	2.79	1.30	4.09	68.19	31.81
Glenn	12	12	24	1.10	1.10	2.20	100.00	
Humboldt	188	100	288	4.35	2.31	6.66	65.28	34.72
Kern	327	92	419	3.96	1.11	5.07	77.86	22.14
Kings	93	27	120	3.66	1.06	4.72	77.50	22.50
Los Angeles	2,297	4,062	6,359	1.04	1.84	2.88	36.12	63.88
Madera	35	25	60	2.04	1.46	3.50	58.33	41.67
Merced	210	35	245	5.71	0.95	6.66	85.71	14.29
Modoc	10		10	1.24		1.24	100.00	
Monterey	71	66	137	1.32	1.23	2.55	51.82	48.18
Nevada	52	17	69	4.91	1.60	6.51	75.36	24.64
Orange	190	102	292	1.60	0.86	2.46	65.08	34.92
Placer	102	222	324	4.17	9.07	13.24	31.48	68.52
Riverside	198	100	298	2.44	1.23	3.67	66.44	33.56
Sacramento	431	292	723	3.03	2.06	5.09	59.61	40.39
San Benito	24		24	2.12		2.12	100.00	
San Bernardino	250	177	427	1.87	1.32	3.19	58.55	41.45
San Diego	520	332	852	2.48	1.58	4.06	60.96	39.04
San Francisco	1,460	2,247	3,707	2.30	3.54	5.84	39.38	60.62
San Joaquin	522	149	671	5.07	1.45	6.52	77.79	22.21
San Luis Obispo	38	29	67	1.28	0.98	2.26	56.72	43.28
San Mateo	129	336	465	1.67	4.34	6.01	27.74	72.26
Santa Barbara	130	250	380	1.39	3.84	5.23	34.21	65.79
Santa Clara	507	306	813	3.49	2.11	5.60	62.36	37.64
Santa Cruz	15	27	42	0.40	0.72	1.12	35.71	64.29
Shasta	52	20	72	3.73	1.44	5.17	72.22	27.78
Sierra	10	5	15	4.13	2.06	6.19	66.67	33.33
Siskiyou	35	26	61	1.37	1.02	2.39	57.38	42.62
Solano	68		68	1.67		1.67	100.00	
Sonoma	92	45	137	1.48	0.72	2.20	67.15	32.85
Stanislaus	196	83	279	3.46	1.47	4.93	70.25	29.75
Sutter	43	14	57	2.94	0.96	3.90	75.44	24.56
Tulare	92	53	145	1.19	0.68	1.87	63.45	36.55
Tuolumne	25	36	61	3.70	3.88	7.58	49.38	50.62
Ventura	50	53	103	1.64	0.96	2.60	62.94	37.06
Yuba	59	31	90	5.21	2.74	7.95	65.55	34.45
Totals and weighted averages	10,190	10,582	20,772	1.88	1.95	3.83	49.06%	50.94%

* Source: Journal of American Medical Association, March 28, 1931.

nected disabilities and chronic cases, such as tuberculosis, neuropsychiatric, and other chronic diseases.

It is estimated that the maximum hospitalization will require in 1947 a total of 130,000 beds. After that the number of veterans will rapidly decrease, and when the intended veterans' hospital building program has been completed, it is estimated that the present fifty-four veterans' hospitals, with their 25,900 beds, now filled with from 60 to 76 per cent of non-service disability connected patients, would be increased to approximately five times that number, with an increase of 104,000 with a total of 130,000, and that from 1947 on these hospitals would still be standing to be maintained by public funds while the number of veterans will be rapidly decreasing, leaving this immense, unnecessary construction on the hands of the American people. We feel that it would be more efficient to use the present community hospitals for these increasing cases so that these institutions in our towns and cities might be kept up and perpetuated for the care of not only the veterans but everyone that may need them now and in the future.

* * *

The Minnesota Plan has been worked out to take care of this emergency situation, and is as follows:

A MINNESOTA PLAN FOR HOSPITALIZATION OF ACUTE VETERAN CASES

Veterans classed as acute medical and surgical emergency cases may have the privilege of being cared for in their local hospitals, approved by the Veterans' Bureau and by local physicians of their own choice, who must also be approved by the Veterans' Bureau. The hospital, medical expense, and the physician's and surgeon's fees to be paid by the Veterans' Bureau, through contracts and fee schedule agreed upon by the hospitals, doctors, and the Veterans' administration.

RESOLUTION

(Resolution adopted by Abner Rude Post 481 of the American Legion, South St. Paul, Minnesota.)

WHEREAS, The Act of Congress of 1926 provides in substance that all veterans should be admitted to veterans' hospitals free of charge, without regard to the nature of origin of their disability; and

WHEREAS, In 1930 60 to 76 per cent of the admissions to veterans' hospitals were for disabilities that were not of service origin; and

WHEREAS, In June, 1931, there were fifty-four veterans' hospitals with 25,930 beds, making an increase during the preceding year of seven hospitals with 3,575 beds. In 1932 the admissions showed 60 to 76 per cent nonservice, and 22 per cent service-connected cases. The Veterans' Bureau estimates that approximately 130,000 beds instead of the present 26,000 will be needed ultimately for the adequate care, without discrimination for the veterans entitled to hospitalization under the act of 1926. Therefore, under the present policy of the National Government more than 104,000 additional beds will be necessary. The total cost of construction at \$3,500 each will be \$455,000,000 with \$229,000,000 maintenance cost per year. The cost of equipment being another staggering figure, and the average transportation cost being \$30.58 per veteran, on an estimate of 130,000 admissions annually, would mean another \$4,500,000. The transportation cost for one diagnostic hospital at present is estimated at \$1,500 a day or \$5,475,000 a year, so the possibility for fifty-four of these hospitals is another fabulous sum. This transportation cost is not figuring into the cost of hospital beds. In addition, the Government spends large sums of money for dental service in the veterans' hospitals, which could also be taken care of in the home towns; and

WHEREAS, The advantages to the veteran from the Minnesota plan are: First, promptness of care in local hospitals, which is often the deciding factor in determining the ultimate outcome. Second, distant transportation in case of pneumonia, acute appendicitis,

compound fractures, hemorrhage, etc., may afford enough of a handicap to prevent ultimate recovery. Third, local care enables the veteran to choose his own physician, one whom he knows personally and in whom he is likely to have more confidence than in a total stranger. Fourth, the veteran remains in his home town, where he can be visited by his family and be in touch with his business instead of being marooned at a distant hospital at a time when home contacts are so important to his own and his family's welfare. Loss of time, which means loss of income, is often much greater when the veteran leaves home. Often the period of hospitalization is prolonged in the veterans' hospital because of the necessity of observation and by the attending physician until complete convalescence is assured; and

WHEREAS, The advantages to the community from local hospitalization are many. It means that the money spent for the veteran's care is to be kept in that town through the hospital, the doctor, the druggist, the nurse and the dentist, and all who will receive patronage. One does not have to be an economist to appreciate the return to the individual from the patronizing of home industries. The income from veteran cases to local hospitals might, oftentimes, be just enough to keep the hospital going so that it might care for others in the community when necessary; and

WHEREAS, The advantage to the taxpayers of the Minnesota plan is direct, inasmuch as it will practically do away with the tremendous cost of building five times the number of veteran hospitals we have today and of maintaining these, and instead taking advantage of the hospitals already built in the many cities. It is estimated that each person in the United States pays \$10 per year toward the care of veterans now, and this intended extensive building program would approximately increase this to \$30 a person or \$120 for every man with a family of two children; and

WHEREAS, The comparative cost between the veterans' hospitals and private hospitals is estimated to be much less through the private hospitals or the Minnesota plan in that it would not include the construction cost or the transportation cost, and would greatly decrease the time of hospitalization necessary. It is estimated, through all figures obtainable, that the maintenance cost of a bed at the Veterans' Hospital is about \$5 a day, that being without the transportation, the construction cost or the interest on investments, etc. While it is customary for the hospitals to contract with the Government for ward beds at \$2.50 to \$3 a day, the average cost of which probably would be some higher, including all x-rays, medications, etc., but it is estimated that it would be considerably cheaper for these acute cases in private hospitals; and

WHEREAS, Approximately 70,000 beds are available in the civilian hospitals of the country, the utilization of which would make it possible to provide immediate hospitalization for the afflicted veterans entitled thereto at an expenditure estimated by persons who have made a study of the situation, at a figure much less than that necessary if veterans' hospitals are erected and operated by the Government of the United States; and

WHEREAS, We, ex-service men of Minnesota, believe that adequate care should be provided by the most economic methods that will insure prompt relief to the acutely disabled veterans; now therefore be it

Resolved, That we, the members of the Abner Rude Post 481 in the State of Minnesota, highly recommend the adoption of the Minnesota plan for the hospitalization of acute emergency medical and surgical cases of veterans in local hospitals, and that our committee notify the state department of the American Legion of our action and do whatever possible to encourage the adoption of the above plan by our national government.

* * *

PROPOSED RESOLUTION

WHEREAS, The Government through its Act of Congress of 1926 has obligated itself to care for all veterans in veterans' hospitals without regard to the

nature of their disabilities, and that to carry out such a program would necessitate an expansion of the capacity of the hospitals from about 35,000 to 129,000 or more beds, an anticipated enormous initial and annual expenditure; and

WHEREAS, There are available in civilian hospitals more than sufficient vacant beds to properly care for all veterans suffering from acute medical and surgical disabilities not of service origin; and

WHEREAS, The use of civilian hospitals, which we all support directly or indirectly, would obviate the need of duplication of a great mass of equipment at public expense, and keep money in our own community; and

WHEREAS, Care of acute medical and surgical non-service-connected cases of veterans in their home communities will be better for the veterans for the following reasons:

Experience has proved that transportation of certain emergency cases for considerable distances to veterans' hospitals, with consequent delay of treatment, has been dangerous and sometimes even fatal;

Veterans living considerable distances from veterans' hospitals suffer relative handicaps in treatment, especially regarding the observation often needed after leaving the hospital;

Care in his home community would prevent separation of the veteran from contact with his family, a matter of some importance in preservation of the morale and cohesion of the family; now therefore be it

Resolved, That we declare ourselves in favor of the principle of care of emergency medical and surgical non-service-connected disabilities of veterans in their home communities by their home physician, and in their community hospital. (We recognize that disabilities of service origin, such as tuberculosis, nervous and mental diseases constitute a different problem.)

CUBAN DOCTORS CALL STRIKE FOR FEE RISE

Havana, Aug. 16.—Approximately 10,000 physicians, members of the National Medical Federation of Cuba, struck at noon today. Three hundred abandoned their positions and services in eight of Havana's most important private clinics, hospitals, and medical associations. Others stopped treatment of more than 3,000 patients confined in institutions, half at least of whom are seriously ill.

President Machado tonight decreed immediate government intervention in the strike today. Octavio Zubi-Zarotta, Secretary of the Interior, was ordered to take steps to assume control of all private Spanish regional associations and medical institutions.

Zubi-Zarotta ordered the Secretary of Sanitation, Carlos D. Céspedes, to appoint government physicians to replace strikers so that patients' lives will not be endangered.

The President sent an urgent message to the directors of the Medical Federation demanding that the physicians return to their posts immediately and promising government arbitration and settlement within seventy-two hours.

The strike was called in protest against the operation of a group of medical institutions which are furnishing medical and hospital services to thousands of Cubans at low rates.

The institutions' membership fees are only \$2 monthly and cover complete treatments for all illnesses, confinements, operations, and burial if necessary. A membership without additional cost in social clubs for sports, balls, and free education of the members' children is also included.

The federation directors assert that the institutions have virtually ruined the medical class, depriving the physicians not connected with the institutions of a chance of making a living. They insist that members earning incomes of more than \$100 monthly be immediately dropped.

The institutions' directors insist that no legal procedure exists to enforce the federation's demand, add-

ing that the institutions' services should not be regulated by incomes or ability to pay higher fees to private physicians.

Inability to arrive at a satisfactory solution following six weeks of bitter controversy resulted in the strike.—*Los Angeles Times*, August 17, 1932.

Pulmonary Gas Absorption in Bronchial Obstruction.—Coryllos and Birnbaum have devised experimental methods which give evidence that, when a bronchus is completely obstructed, the entrapped alveolar air rapidly undergoes qualitative and quantitative changes as determined by successive gas analyses. Qualitatively, the percentages and partial pressures of the gases comprising the alveolar air tend to, but never quite, reach an equilibrium with the gases of venous blood. Quantitatively, the entrapped alveolar gases pass through the respiratory membrane into the blood circulating in the perialveolar capillaries until complete airlessness of the involved area is produced. The mechanism of production of atelectasis in the compressed lung (pneumothorax, pleural exudate, intrathoracic tumors, and so on) is exactly the same as in bronchial obstruction. Besides the gases of the air, diffusion of other gases was studied by introducing them into a lung previously rendered atelectatic. The different gases used in these experiments were: (1) active gases, oxygen and carbon dioxide; (2) neutral gases, hydrogen, nitrogen and helium, and (3) anesthetic gases or vapors, ether, ethyl chloride, nitrous oxide and ethylene. A new experimental method was devised which allows direct vision of the pulmonary changes occurring during the experiment. Nitrogen in the respiratory air plays the part of a "mechanical buffer," retarding the absorption of more diffusible and more soluble gases. This experimental work has allowed the formation of a theory on the mechanism of atelectasis based on the physiology of exchange of gases in the lung.—*Am. Jour. Med. Sciences* and *J. A. M. A.*, Vol. 98, No. 22.

Infective Asthma.—Cooke believes that asthma of infective origin is subject to hereditary influence. This, of course, only proves that asthma, whether of the infective or the skin-sensitive type, is the offspring of hereditary influences. But the facts that 15 per cent of all asthmas are combined sensitization and infective types, that skin-sensitive allergies are frequent in the antecedents of infective asthma and that the opposite condition also obtains, all lend support to the view that the two types may be regarded as of the same nature. Eosinophilia may be regarded as an allergic phenomenon. Experimentally it is produced only under conditions that are regarded as favoring sensitization. Local eosinophilia of histogenous origin is believed to be shown. Eosinophilia is as frequent in asthma of infective origin as in that of the skin-sensitive type. Infective asthma may be regarded as an allergic reaction quite as properly as is the skin-sensitive type, although the immunologic reactions in the two forms are not identical.—*Am. Jour. Med. Sciences* and *J. A. M. A.*, Vol. 98, No. 22.

Operations on Superior Pole of Thyroid.—Roeder enumerates thus the significant complications that may occur during the removal of the superior pole of a goitrous thyroid: (1) injuries to the inferior and superior laryngeal branches of the vagus, producing (a) partial or complete loss of voice, (b) obstruction to inspiration, (c) aspiration of ingested fluids into the bronchi, (d) loss of sensation to the mucosa of the larynx, and (e) referred pain to the lower portion of the pinna through the "vagopinna reflex"; (2) referred pain to the mandibular teeth through the "thyromandibular reflex"; (3) paralysis of the soft palate; (4) referred somatic pain through any or all of the first four cervical spinal sensory nerves; (5) hemorrhage from the superior thyroid vessels, and (6) injury to or removal of parathyroids.—*Arch. of Surg.* and *J. A. M. A.*, Vol. 98, No. 22.

CANCER COMMISSION OF THE C. M. A.

The Cancer Commission was brought into being by the House of Delegates of the California Medical Association to aid in the furtherance of all efforts to combat cancer. The roster of officers and the central office of the Commission to which communications may be sent is printed in this issue of California and Western Medicine (see front cover directory). This column is conducted by the Secretaries of the Commission.

REPORT OF THE BREAST TUMORS COMMITTEE*

I

WHAT CALLS THE PATIENT'S ATTENTION TO THE BREAST

1. **A Painless Lump.**—In an overwhelming majority of cases the patient finds a tumor in her breast by "accident," the patient's hand encountering a lump while bathing or dressing. Women should be educated to keep watch of their breasts and not to wait for "accidental" discovery.

In early cancer the lump is painless, almost without exception.

2. **Bleeding Nipple.**—First determine if discharge is actually bloody (microscopic examination) or merely dark-colored (patient's word is not always reliable).

More difference of opinion developed over the significance and handling of cases of bleeding nipple in the absence of a lump demonstrable by palpation or transillumination than over any other breast condition, reflecting the disagreement apparent in general surgical literature. In view of this difference of opinion, the committee is not prepared to lay down at the present time any rule covering all cases of this condition. Fortunately the number of cases of cancer giving bleeding from the nipple as the first sign or symptom are very few.

3. **Non-Bloody Nipple Discharge.**—When a non-bloody discharge is present, serous or dark in character, a dilated lactiferous duct is thought of. The condition may well be viewed with suspicion and the breast kept under observation; but, in general, a non-bloody discharge from nipple is rarely diagnostic of malignancy.

The location of a tumor in any particular quadrant of the breast is generally conceded to possess very little significance in differential diagnosis as between benign and malignant. In prognosis, of course, cancers in the axillary quadrant are more likely to have early gland involvement.

WHAT CONSTITUTES PROPER EXAMINATION?

I. The complete and proper examination should include:

- (a) A complete history, with special reference to the breast, including pregnancies, miscarriages, incomplete or abnormal lactations, infections, traumata.
- (b) A general physical examination.

II. Then, with shoulders and entire chest exposed, a careful inspection should be made, noting:

- (a) Asymmetry of the two sides.
- (b) If the breasts are of equal size.
- (c) Dimpling or pigmentation of the skin, often brought out by gently moving the breast across the chest wall.
- (d) Visible local swelling.
- (e) Retraction of nipple.
- (f) Involvement of supraclavicular or axillary spaces, either actually palpable or suspicious fullness. One member suggests that rectal examination will occasionally find metastatic deposits.

III. **Palpation.** *Extreme gentleness is imperative in palpating both the breast and also for glands in the axilla lest cancer cells be forced out into lymphatic*

channels. This should be done with the flat of the hand, lightly. A definite lump will demonstrate itself between the hand or finger and the chest wall. Forcible grasping of the gland increases the hazard of metastasis and confuses the examiner by doubling breast tissue into false lumps.

Three positions are recommended for the patient to assume in this examination:

(a) Recumbent or semi-recumbent, with arms extended above the head.

(b) Sitting upright, with and without arms extended above the head. Retraction of nipple and shortening of the suspensory ligaments of the breast are best brought out with the arms extended above the head.

(c) Bending forward in sitting position with flexion of trunk upon the thighs.

There may be present:

(a) Nodules—(1) single, (2) multiple, (3) bilateral, (4) fixed—carcinoma.

(b) Nodes in axillae or supraclavicular regions. While in general malignant nodes are hard and inflammatory nodes soft, the committee feels that these distinctions are not sufficiently constant to warrant dependence upon them in diagnosis, except in the case of large, hard or fixed, obviously malignant nodes.

IV. Transilluminate both breasts by Cutler's method:

Cystic tumors—transparent, unless containing blood. Solid tumors—dense and dark.

Transillumination is of little value in distinguishing between benign and malignant tumors; of most value where blood is present, *i. e.*, in bleeding nipple from cyst with blood transillumination shows very dense shadow—more so than solid tumor. Large serous cysts, benign, may show evidence of light fluid contents on transillumination. In general, results of transillumination should be regarded as confirmatory and not diagnostic. At present the procedure can never replace exploration.

V. Your committee recommends that, in the presence of definite breast tumors of a suspicious type, the complete examination should include chest x-rays in order to rule out lung metastasis, even though chest symptoms may be absent; further x-rays to include spine and pelvis, if the so-called "rheumatic pains" are present.

If extension of the disease can be demonstrated beyond the axillary lymph nodes, radical surgery is then contraindicated.

Every single gross nodule present in the breast in a patient over the age of twenty-five years should be explored, unless the diagnosis of cancer is obvious.

Your committee believes that in an increasing number of early breast cancer lumps it is impossible to make a positive clinical diagnosis; and that we are sacrificing the patient's chances of cure if we wait for the positive clinical signs of malignancy; and, therefore, that the rule just expressed should be universally adopted and rigidly adhered to. For this reason your committee believes that the simple determination of the *presence or absence of a definite lump* constitutes an adequate examination and desires to emphasize again the danger of increasing metastases by a prolonged manipulation in examination.

Exploration.—Preliminary radiation was advised by two members in these cases in order to diminish the possible metastasis that might follow the trauma incurred by the necessary surgery in the event that exploration proved the presence of cancer. The com-

* Concerning work and reports of Cancer Commission of the California Medical Association, see August California and Western Medicine, pages 124 and 131.

mittee as a whole is not yet prepared to insist upon this as a rule, but inasmuch as preoperative radiation appears to be more valuable than postoperative, and since radical operation must be done at the same time as biopsy, recommends radiation before biopsy when it is felt that the tumor to be explored is *probably* cancer.

VI. In making a biopsy, it was recommended that:

- (a) The consent of the patient should be obtained for further surgery if it is found to be necessary.

- (b) Complete preparation for such surgery should be made at this time.

- (c) In either type the entire lump should be removed, unless obviously cancer at first approach.

- (d) Unless gross diagnosis is obvious and definite, a frozen section is then to be made by the attending pathologist; and, if reported positive for malignancy, the complete surgery should immediately follow.

- (e) In exploring and in the removal of a nodule or tumor, it was thought that the electric cautery knife or endothermy did not possess any advantage of safety over the cold blade, provided that chemical agents be used, such as phenol, alcohol pack, Harrington's solution, with closure of the incision. *Before proceeding with the radical surgery there should be a complete change of drapes, fresh gloves are worn, and new instruments uncovered.*

(Other opinion was that endothermy and the cautery do constitute a factor of safety in that there is less chance of implanting the stray cancer cell (two members); and that it was not necessary to treat the open wound with chemical cautery (one member).)

WHAT CONSTITUTES PROPER TREATMENT?

I. The lesions that require local removal are the encapsulated tumors, as:

- (a) Encapsulated adenoma or adenofibroma.
- (b) Single serous and papillomatous cysts.
- (c) Cystadenoma (either encapsulated or localized).
- (d) Tumor-like masses of chronic cystic mastitis.

II. The breast only should be removed in case of:

- (a) Diffuse polycystic and fibrocystic mastitis. (Some difference of opinion was apparent, some of the members feeling that only diffuse polycystic mastitis of the proliferative type—cystadenoma, Schimmelbusch's disease—require total mastectomy.)
- (b) Tuberculosis.

- (c) Paget's disease of nipple or any chronic, intractable nipple eczema. A careful examination of the removed breast at the time of operation will determine the necessity of axillary dissection.

- (d) Large ulcerating mass as the result of necrosis from malignancy, in order to relieve pain—palliative only.

III. The minimum adequate radical operation consists in:

- (a) A wide skin excision—approximately the skin over the entire breast with a wide margin of outside skin around tumors near the border of the breast. It is possible to obtain exposure without running scar line across the axillary space.

- (b) A still wider excision of deep fascia—sternum to latissimus dorsi; clavicle to and including upper segment of sheath of rectus muscle.

- (c) Removal of both pectoralis major and minor, preserving if possible the cephalic vein and the portion of the pectoralis major in which it lies, as a prophylaxis against edema of the arm.

- (d) Clean removal of gland bearing fat from axillary structures leaving bare (1) chest wall, (2) subscapularis, (3) axillary vein to margin of latissimus. One member suggests the advisability of removing the fat from the subclavian vein with removal of Halstead's gland.

- (e) All these structures must be removed in one mass, beginning first with the complete axillary dissection and working toward the central diseased breast area.

- (f) Closure in such manner as to cover axillary structures. If an adequate amount of skin has been removed, many cases will require skin graft.

The use of the cautery or diathermy knife does not offer any advantage of safety in regard to the recurrence of cancer, but in the hands of some men it is a desirable technique. The actual cautery is indicated in advanced cases where sloughing tissue should be destroyed and is solely for the comfort of the patient and without the expectation of checking the progress of the disease.

The committee feels that a classification of types of cancer should be included in this report, but that this should be delayed until a report is received from the Committee on Pathology.

(To be concluded)

Lactation and Breast Cancer.—Wainwright concludes from a study of American women with cancer of the breast and of a series of normal women as controls, that normal lactation tends rather to protect from breast cancer than to predispose to it. The incidence in single women, in childless married women and in mothers who had not nursed their children appeared consistently higher than in women who had lactated normally. This agrees with conclusions from a similar study in Great Britain.—Janet E. Lane-Clayton, British Ministry of Health (Public Health Department No. 32, 1926)—Wainwright, J. M., *American Journal of Cancer*, Vol. 15, 1931, p. 2610.

Prognosis of Early Rectal Cancer.—A series of 215 cases of operable tumors of the rectum has been very carefully graded. The results of treatment, with special regard to recurrence, have been followed up during periods up to five years. Cancers of the rectum can be divided into three classes, A, B and C, according to the extent of the spread of the tumor. A cases are those in which the growth is limited to the wall of the rectum; B cases are those in which there is extra-rectal spread but in which no metastases into the lymph glands are present; C cases are those in which metastases are present in the regional lymph nodes. Striking differences in the operative mortality rate and in the survival rate after operation are found in these three groups. There is reason to believe that in A cases the disease is completely eradicated by rectal excision; the excellent results of operative treatment confirm the opinion previously expressed that *lymphatic metastases do not occur until a rectal carcinoma has spread by direct continuity to the extra-rectal tissues*. In B cases, also, a good prognosis is justified even though the prognosis is slightly less favorable than in A cases. The results of surgical treatment in C cases are very disappointing.—Ninth Annual Report, British Empire Cancer Campaign, 1932.

The Spacing of Doses in Radiotherapy.—It is generally recognized that the effect upon tissues of a certain dose of radiation depends not only upon the dose but upon the way in which it is given: and the ways in which a single dose can be given are extremely numerous. It has been our object to find out whether a tumor growing in an animal is more influenced by a dose of radiation when it is given at one exposure or at several exposures, and if the latter then to find the optimum time intervals to choose for spacing the dose. This line of investigation has been going on for the best part of a year with two animal tumors growing at different rates, one the Jensen's rat sarcoma and the other a round celled sarcoma which we have had established in these laboratories (Middlesex Hospital) for some years. So far, as the observations go they show that tumors can often be made to disappear by sublethal doses when these doses are spaced so that the tumor only gets a fractional part every other day or at even bigger intervals of time; but we are not yet in a position to state what the optimum intervals are.—Ninth Annual Report, British Empire Cancer Campaign, 1932.

STATE MEDICAL ASSOCIATIONS

CALIFORNIA MEDICAL ASSOCIATION*

JOSEPH M. KING.....President
GEORGE G. REINLE.....President-Elect
EMMA W. POPE.....Secretary-Treasurer

OFFICIAL NOTICES

Meeting of the Council.—The fall meeting of the Council of the California Medical Association will be held in Los Angeles, September 24, 1932, at the California Club, 538 South Flower Street.

* * *

Extension Lecture Service.—Each year in the September issue of *CALIFORNIA AND WESTERN MEDICINE* is printed an invitation to members of the California Medical Association to submit subjects for the Extension Lecture program.

It must be understood that those who enroll for this gratuitous service many times receive calls at inopportune moments, but that the service in some way compensates is evidenced by the infrequency of the requests for release.

Interest in county society meetings is stimulated by having one paper on the program by an outside speaker. Some county societies regularly secure speakers from the Extension program.

Will any member who has a subject of medical interest to members and who is willing to go on call to the various county medical societies of the state, furnish before the 20th of September his name and the titles of not more than three addresses. Address, the California State Medical Association, 2004 Four Fifty Sutter Building, 450 Sutter Street, San Francisco.

COMPONENT COUNTY MEDICAL SOCIETIES

ORANGE COUNTY

On Thursday, August 18, a special meeting of the Orange County Medical Association was held in the chapel of the County Hospital. The society was honored by the presence of Dr. Joseph M. King, president of the California State Medical Association, who gave an address on *Medical Economics*, which was of great interest to every member present. Doctor King strongly urged a closer relationship between the county society and its respective local and state officials. He explained in detail some of the problems which confront county hospitals that care for "part pay" patients. Doctor King reminded us that almost 50 per cent of the hospital patients in the state are cared for in institutions financed by the taxpayer.

Dr. Fred Clarke, president of the Long Beach Academy of Medicine and also president of the Southern California Medical Society, spoke on *Factors Responsible for the Change in Public Sentiment Toward the Present Methods of Medical Care*. Doctor Clarke has made a thorough study of this question and much valuable information was gained from this talk.

Forty-five members were present at this meeting, and among the guests were some of Orange County's supervisors and political candidates then in the field for election.

*For a complete list of general officers, of standing committees, of section officers, and of executive officers of the component county societies, see index reference on the front cover, under Miscellaneous.

There being no regular business transacted, after a unanimous vote of thanks and appreciation had been extended to Doctor King and Doctor Clarke, the meeting was adjourned.

HARRY G. HUFFMAN, *Secretary*.

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VENTURA COUNTY

The August meeting of the Ventura County Medical Society was held on the 9th at the Clinic building, Ventura County Hospital, Dr. Sterling Clark presiding. Members present were: Doctors Sterling Clark, Illick, Felberbaum, Armitstead, Charles Smolt, Mosher, Foskett, King, Shore, and Strong.

Communications were read. It was decided to request a symposium on the gastro-intestinal tract by the Cancer Commission for the October meeting.

Doctor Foskett's professional card for the telephone directory was approved.

Discussion was had of the medical advertising plan sponsored by the *Ventura Free Press*.

The meeting closed after a discussion of the new fees for x-rays paid by insurance companies in industrial cases. It was felt that the new fees were unfair to men in the smaller communities, where no great volume of work is done.

Doctor Illick was appointed program chairman for the September meeting.

ARTEMAS J. STRONG, *Secretary*.

CHANGES IN MEMBERSHIP

New Members (16)

Alameda County—John Wadsworth Robertson, Jr.

Los Angeles County—Ralph Bonner Eusden, Lowell Reed Hill, Osmonde Woodfall Janes, Louis Aloysius Mangan, Carroll Alonzo McCoy, William M. Pearce, Saul Silas Robinson, Gerald True Sprague, Theodore Alfred Strang, John A. Wahlen, Ernest Paul Wheeler.

San Bernardino County—Albert Daniel Neubert.

San Diego County—Linues Emanuel Adams, Lewis H. Fairchild, George Lester Kilgore.

Transfers (2)

Frank E. Blaisdell, Jr., from Santa Barbara to Santa Cruz County.

Ralph E. Swarts from San Francisco to San Mateo County.

In Memoriam

Arthur, Edgar Allen. Died in Stockton, July 12, 1932, age 69 years. Graduate of University of California Medical School, San Francisco, 1901. Licensed in California, 1901. Doctor Arthur was a member of the San Joaquin County Medical Society, the California Medical Association, and the American Medical Association.

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Crandall, Henry Floyd. Died in Oceanside, July 16, 1932, age 58 years. Graduate of St. Louis College of Physicians and Surgeons, Missouri, 1908. Licensed in California, 1919. Doctor Crandall was a member of

the San Diego County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.



Durand, Charles Joseph. Died in Sacramento, July 7, 1932, age 46 years. Graduate of Laval University Faculty of Medicine, Quebec, 1911. Licensed in California, 1917. Doctor Durand was a member of the Placer County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.



McKillop, John Edwin. Died in Santa Monica, July 25, 1932, age 48 years. Graduate of University of California Medical School, San Francisco, 1911. Licensed in California, 1912. Doctor McKillop was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

OBITUARIES



Agnes Walker
1873-1932

Agnes Walker, M.D., was born in Scotland and came to California as a child. She was educated in San Rafael by Miss Murison and entered Cooper Medical College in 1891. She graduated in 1893, interned at the Children's Hospital, and at once showed her preference for laboratory work.

Doctor Walker worked at the quarantine station on Angel Island and came to know Doctor Kinyoun very well. When he resigned to be director of Mulford's laboratories in Pennsylvania, Doctor Walker was asked to come on to work there. She returned to San Francisco after the fire and was city bacteriologist and director of the laboratories of the Board of Health of San Francisco through her working years. She was loaned to Los Angeles to establish a plague laboratory for the detection of diseased rats in its outbreak of plague in 1925.

After her return from a leave of absence, she resigned as director of the city laboratory but retained her work as city bacteriologist until her final resignation in 1930.

In a long life of service to scientific diagnosis and public health, Dr. Agnes Walker presented to life a gallant front, dignified and supported by the highest standards of severe rectitude. She was keen and capable in her work and a loyal friend.

To those who cared for her through her last sickness, her gentleness and courage will always be comforting memories.

ADELAIDE BROWN, M. D.



Charles D. Lockwood
1868-1932

Lieutenant Colonel Charles D. Lockwood died on June 11, 1932, at his home, 295 Markham Place, Pasadena, after a brief illness.

He was born in Effingham, Illinois, January 22, 1868. He received his A. B. degree in 1893, his M. D. degree in 1896 from Northwestern University, and he interned in the Chicago Lying-In and Cook County hospitals the following year.

Doctor Lockwood married Clara M. Sanford of Platteville, Wisconsin, on September 5, 1898.

He was assistant instructor in surgery in Northwestern University Medical School from 1897 to 1899, and alternate member of the California State Board of Medical Examiners from 1901 to 1902, and professor of surgery, College of Dentistry, University of Southern California in 1902. In 1906 he took post-graduate work in the University of Vienna. Doctor Lockwood held the positions of consulting surgeon to the Los Angeles County Hospital and attending surgeon to the Pasadena Hospital from 1912 to the time of his death.

During the world war, Doctor Lockwood organized the Red Cross Ambulance Company No. 1, 1916-1917. He was major of the Marine Corps, U. S. A., in France from December, 1917, to January, 1919, and was for five months at the western front. He was a Fellow of the American College of Surgeons and of the American Medical Association and Western Surgical Association, a member of the Pacific Coast Surgical and of the American Society of Thoracic Surgical Associations.

The passing of Doctor Lockwood is a great loss to Pasadena. His activities were manifold. He was interested in civic affairs, always a leader for the best in government; but his chief interest was leadership in medicine and surgery in Pasadena.

Medically, he was affiliated with the Olive View Sanatorium, the La Vina Sanatorium and the Pasadena Dispensary. In all his affiliations Doctor Lockwood stood for the best in medicine and surgery.

For over thirty years he was active on the surgical staff of the Pasadena Hospital, chairman of the building committee, always a protagonist and a teacher in the Pasadena Training School for Nurses and for many years he had maintained the Lockwood Scholarship for Nurses. So great was his interest in the training of nurses that he had just completed a textbook on Surgical Technique which is a worthy monument to his memory.

J. M. WILSON, M. D.,
Pasadena.

Charles Joseph Durand
1886-1932

Dr. Charles Joseph Durand was born in Coaticook, Province of Quebec, Canada, December 10, 1886, and died in Sacramento July 6, 1932.

Doctor Durand graduated from the medical department of Laval University, Quebec, with the class of 1911. In 1913 he came to California and in 1914 to Colfax. Since 1917 he had been associated with me as an assistant—for the past fourteen years as chief assistant. During these years of close association his kindly cheery disposition, his devout Christian character, his loyalty to his chief, to his profession and to his patients, and his high personal and professional standards of life endeared him to the members of the staff, to his confrères and to his patients as well as to the people of the community in which he lived.

Doctor Durand entertained a high sense of responsibility respecting civic duties. As an adopted citizen of the United States, when the country entered the Great War he, in spite of physical handicaps, the result of previous tuberculous disease, volunteered for service. The privilege of serving in his country's armed forces was, however, denied him. At all times and in many ways, however, he served his community, having been city health officer and a member of the local school board for many years, as well as an active member of other local civic bodies.

Doctor Durand served his local medical society as president, and at the time of his death had been its associate secretary-treasurer since 1923. He had also served as secretary and later as president of the California Northern District Medical Society. He was a member of the California Academy of Medicine, a Fellow of the American Medical Association, and a Fellow of the American College of Physicians.

Doctor Durand is survived by his widow, Mrs. Anna E. F. Durand, and by one son, Robert Louis Durand.
ROBERT A. PEERS.

**THE WOMAN'S AUXILIARY TO THE
CALIFORNIA MEDICAL
ASSOCIATION***

Component County Auxiliaries

Sacramento County.—Following her annual custom, Mrs. Robert A. Peers was hostess to the members of the Woman's Auxiliary to the Sacramento Society for Medical Improvement on May 17 at her home in Colfax. A basket luncheon was served at noon in the garden of the home. Mrs. Frederick Scatena presided at the regular business meeting. Doctor Peers welcomed the ladies of the auxiliary, and Mrs. Frederick Faulkner gave a most interesting talk on "Persons and Personages" she had met.

Complimenting Mrs. Andrew Mitchell Henderson, president-elect of the Woman's Auxiliary to the California Medical Association, the Sacramento auxiliary entertained at a bridge luncheon at the Del Paso Country Club in June. Mrs. Frederick Scatena, president of the local auxiliary, presided as toastmistress.

Mrs. Henderson discussed the aims of the medical auxiliary, and stated that welfare projects and social relations are interpreted more effectively through the power of organized women.

Mrs. James Rolph, Jr., Mrs. Thomas Huntington, Mrs. Joseph M. Toner, Mrs. Frank Hinman of San Francisco, Mrs. Herbert True, Mrs. June Harris, Mrs. F. E. Coulter, and members of the state board were special guests.

* As county auxiliaries to the Woman's Auxiliary to the California Medical Association are formed, the names of their officers should be forwarded to Mrs. Clifford A. Wright, chairman of Publicity and Publications Committee, 454 South Irving Boulevard, Los Angeles. Brief reports of county auxiliary meetings will be welcomed by Mrs. Wright and must be sent to her before publication takes place in this column. For lists of state and county officers, see advertising page 6. The Council of the California Medical Association has instructed the editors to allocate one page in every issue for Woman's Auxiliary notes.

Malignant Disease of Lungs.—Kerley states that there are two equally common roentgen manifestations of primary lung cancer. In one a lung or a lobe is involved in a pneumonic process, and in the other the disease appears to be limited to the hilus. Certain roentgen features are common to the two forms, but as a rule they maintain distinctive appearances to the end. The appearances of the lobar or pneumonic form vary with the number of lobes affected. Contraction of the lobe, as evidenced by displacement of the fissure, was first noted by roentgenologists and led to a revision of the pre-roentgenologic idea that neoplasms of the lung increased the thoracic contents. Primary lung cancer by obliteration of bronchi and destruction of lung tissue always diminishes the thoracic contents. On closer study of a roentgenogram of a lobar carcinoma, it will be observed that the opacity is densest near the root and diminishes in intensity toward the periphery. If a very hard picture is taken, one can often distinguish two opacities: the first an extremely dense one attached to and spreading from the hilus, the second a less dense one covering the affected lobe in all directions. These two shadows represent growth near the hilus and collapse in the periphery of the lobe. If the vascular markings of the lung are invisible in the light peripheral opacity and visible in the dense opacity near the root, one can diagnose carcinoma with certainty, for there is no other lobar pneumonic process that produces this dual effect. In all nonmalignant pneumonic processes the lung markings are either completely invisible or faintly visible in every part of the affected area. Diaphragmatic paralysis is an invaluable sign. A less well known disturbance of innervation associated with carcinoma of the lung is compression or invasion of the vagus. Pleural effusion, as a complication of the pneumonic or lobar form of carcinoma, is the bugbear of the radiologist, for it masks nearly everything. If the effusion is small it has no significance, but if, as so often happens in malignant conditions, the effusion is large, one is confronted with great difficulties. The visualization of enlarged bronchial or mediastinal lymph nodes is one of the most valuable diagnostic points and is, moreover, of considerable clinical significance, since it contraindicates surgical intervention. An equally frequent roentgen manifestation of bronchial carcinoma is the so-called hilar form, which is seen as a dense opacity round the root of the lung without collapse or consolidation in the peripheral parts of the affected lobe or lobes. This type of the disease is easier to diagnose than the pneumonic type, because there are few other lung diseases causing similar appearances. A sudden transition from the hilar type to the pneumonic type is not uncommon, and probably if one saw the disease early enough one would find it first as a small hilar opacity later causing lobar or lung collapse. Obstruction of the superior vena cava takes place earlier and more often with a growth of the hilar type than with one of the pneumonic type. It is obviously impossible to describe all the varying appearances that are to be seen in roentgenograms of pulmonary carcinoma. But there is one roentgen feature common to all malignant growths of the lung: there is never normal lung tissue between the shadow of the neoplasm and the shadow of the mediastinum.—*British Medical Journal*.

Persistence of Immunity to Cysticercus Fasciolaris After Removal of Worms.—Miller and Massie report that the acquired immunity conferred on the albino rat by an infection with *Cysticercus fasciolaris* was not lost in twenty-four individuals from which the worms were removed. An interval of from thirty-three to sixty days was allowed between removal of the cysticerci and infection. The onchospheres fed at that time resulted in an average of seventy-seven larvae, living and dead, in the control rats, whereas development was completely inhibited in the rats from which the worms of the initial infection had been removed.—*Jour. of Prev. Med., and J. A. M. A., Vol. 98, No. 22.*

MISCELLANY

Under this department are ordinarily grouped: News; Medical Economics; Correspondence; Twenty-five Years Ago column; Department of Public Health; California Board of Medical Examiners; and other columns as occasion may warrant. Items for the News column must be furnished by the fifteenth of the preceding month. For Book Reviews, see index on the front cover, under Miscellany.

NEWS

Coming Meetings—

American Medical Association, Milwaukee, Wisconsin, 1933, Olin West, M. D., 535 North Dearborn Street, Chicago, secretary. Date of meeting to be announced later.

California Medical Association, Del Monte, April 24-27, 1933, Emma W. Pope, M. D., 450 Sutter Street, San Francisco, secretary.

Nevada State Medical Association, Reno, September 23-24, 1932, Dr. Horace J. Brown, 120 North Virginia Street, Reno, secretary.

Oregon State Medical Society, Klamath Falls, September 22-24, 1932, Albert W. Holman, M. D., 410 Taylor Street, Portland, secretary.

Utah State Medical Association, Ogden, September 15-17, 1932, Leland R. Cowan, M. D., 305 Medical Arts Building, Salt Lake City, secretary.

Washington State Medical Association, Tacoma, September 12-14, 1932, Curtis H. Thomson, M. D., 1305 Fourth Avenue, Seattle, secretary.

Northern California Public Health Association Meets in Oakland.—The summer meeting of the Northern California Public Health Association was held in Oakland June 25. Dr. A. H. Hieronymus, city health officer of Oakland, acted as host. The idea of round table discussions at the meetings of the association which was inaugurated at the January meeting proved so great a success that it was repeated in Oakland. Four round table discussions were held—that on dental hygiene was led by Dr. Willard C. Fleming of San Francisco; that on communicable disease control by Dr. Allen F. Gillihan, county health officer of San Luis Obispo; that on health publicity by Mr. W. Ford Higby, executive secretary of the California Tuberculosis Association; and the discussion on health insurance and the public health was led by Dr. Ralph Reynolds of San Francisco. Following the round table discussions, the leader of each group presented a summary of each discussion before the meeting as a whole. Mr. W. Ford Higby reported on the meeting of the Western Branch of the American Public Health Association which was held in Denver early in June. Dr. Thomas Storey of Stanford University, president of the Northern California Public Health Association, presided. Reports were made by Dr. Walter Brown of Stanford University, secretary, and Miss Mary E. Davis of the Bureau of Child Hygiene of the California Department of Public Health, treasurer.

American Legion Medical Post.—The fiscal year of most Legion posts ends on September 30. Veteran medical officers, and those who served in the World War and have become physicians since, are urgently invited to join Medical Post. If for any reason a veteran medical officer believes it to be to his advantage to remain a member of his local post, he is encouraged to do so. However, if professional association with fellow physicians and social amenities with their families appeal to a medical veteran of the World War, he will find such advantages by joining Medical Post.

Veteran medical and dental officers who served in the World War as well as veteran army and navy nurses are eligible to membership.

Applications with a check for \$7 should be sent to Roy L. Sturges, M. D., Adjutant, 1106 South Broadway, Los Angeles, or to George A. Akers, M. D., 200 South Chapell, Alhambra, or to John F. Martin, M. D., Commander, 570 North Rossmore, Hollywood.

Bone and Radiological Conference.—The Bone and Radiological Conference will be held on September 19-24, 1932, at the Johns Hopkins University, under the auspices of the Surgical Pathological Laboratory of the Johns Hopkins University. The program is as follows:

Monday, September 19, for oral surgeons, and those interested in jaw, teeth, and oral cavity.

Tuesday, September 20, conference on special subjects—jaw, giant-cell tumor, and Ewing's sarcoma.

Wednesday, Thursday, and Friday, September 21, 22 and 23, main bone demonstration. Any doctor may attend all demonstrations.

Tentative Schedule for Dr. W. McKim Marriott,† University of California Medical School:

Thursday, September 1—8:30 to 9:30 a. m., Pediatric Rounds, H Ward.

**Friday, September 2*—9:00 to 10:30 a. m., General Pediatric Rounds, Toland Hall.

**Saturday, September 3*—9:30 to 11:00 a. m., Amphitheater Clinics, Medicine and Pediatrics, Toland Hall. Subject: Diabetes Mellitus.

Tuesday, September 6—8:30 to 9:30 a. m., Pediatric Rounds, H. Ward.

**Wednesday, September 7*—12 noon to 1:00 p. m., Third-Year Pediatric Lecture, San Francisco Hospital. Infant Feeding (continued).

Thursday, September 8—8:30 to 9:30 a. m., Pediatric Rounds, H. Ward.

**Wednesday, September 14*—11:00 a. m. to 12 noon, Fourth-Year Clinical Pathological Conference, Cole Hall. "Maternal and Fetal Diabetes and Hypoglycemia."

**Friday, September 16*—9:00 to 10:30 a. m., General Pediatric Rounds, Toland Hall. 8:15 p. m., Toland Hall: Northern California Pediatric Society.

**Saturday, September 17*—8:00 to 9:00 a. m., Fourth-Year Pediatrics. Demonstration of Cases.

Monday, September 19—8:00 p. m., Alameda County Medical Society, Oakland.

**Tuesday, September 20*—8:00 to 9:00 a. m., Second-Year Pediatric Lecture, Cole Hall: Physiology Applied to Pediatrics.

**Wednesday, September 21*—11:00 to 12 noon, Fourth-Year Clinical Pathological Conference, Cole Hall: "Acrodynia."

**Friday, September 23*—9:00 to 10:30 a. m., General Pediatric Rounds, Toland Hall.

**Saturday, September 24*—8:00 to 9:00 a. m., Fourth-Year Pediatrics, Toland Hall. Demonstration of Cases.

* Open to profession at large.

† Titles of lectures listed subject to Doctor Marriott's approval on arrival.

Pacific Coast Oto-Ophthalmological Society.—The Pacific Coast Oto-Ophthalmological Society held its twentieth annual meeting in Seattle June 30, July 1-2, 1932. This is a sectional society, embracing the territory west of the Rockies, British Columbia, Alaska, and Hawaii. Considering the times, the meeting was well attended, especially from near-by points. San Francisco was selected as the meeting place for 1933. The following officers were elected: President, Hans Barkan, M. D., San Francisco; first vice-president, Bertram C. Davies, M. D., Los Angeles; second vice-president, Lee Bouvy, M. D., LaGrande, Oregon; secretary-treasurer, J. Frank Friesen, M. D., Los Angeles.

National Board of Medical Examiners—California Rankings.—It is noted in the May number of *The Diplomat* published by the National Board of Medical Examiners that students of the College of Medical Evangelists took honors as follows in the February examinations: In Part I, Donald R. Gibbs made fourth place. In Part II, Robert B. Haining tied for first place, Eugene J. Joergenson tied for second place, John C. Redell took sixth place, and Elisabeth Larsson tied for tenth place. In Part I, Edward N. Lindquist tied for the highest mark in Bacteriology. In Part II, Elisabeth Larsson tied for highest mark in Medicine, and Joseph E. Cairncross tied for the highest score in Surgery. These examinations are written by students from all over the United States. The students securing the ten highest places constitute the "honor" list.

American Public Health Association.—The sixty-first annual meeting of the American Public Health Association will be held in Washington, D. C., October 24-27, with headquarters at the Willard Hotel.

The American Public Health Association occupies a unique place in the public health world. It is the corporate body of all the public health workers of the country. It is their organization, their clearing house, their source of information, their spokesman and advocate of sound working principles and standards in public health service, their avenue of personal contacts so essential to individual growth and advancement, and their inspiration to keep going. The association represents the public health workers of the country and through them the trend, the quality and the progress of the health of the nation.

The Association of School Physicians will hold its meetings on Friday, Saturday, and Sunday prior to October 24. This association will also meet in joint session with the Child Hygiene and Public Health Nursing sections for one or more programs. The State Sanitary Engineers will meet on Friday, Saturday and Monday for their own conferences and then join with the Public Health Engineering Section of the association.

The scientific character of the program is so well known that it does not need special comment here. One session will be devoted to the important subject of mental hygiene. The Committee on Training and Personnel will sponsor a luncheon at which the training of engineers, nurses, and health officers will be discussed. Diphtheria will be discussed at another luncheon. There will be symposiums on air hygiene; incidence, identification and significance of bacterial carriers; standard methods; bacterial dissociation; vital statistics; registration problems; and the participation of the medical profession in public health work. Altogether the scientific program promises to be unusually good.

Public health workers are urged to make their hotel reservations early so that they will be assured of adequate accommodations.

HOSPITAL COSTS STAGGER NATION*

Bill for War Veterans to Reach \$55,329,525

Treatment for Disabled in Conflict Not Begrudged

By COL. CHARLES R. STARK, JR.

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Washington, Aug. 21. (Exclusive)—Free hospitalization, domiciliary care and medical treatment of veterans of the Spanish and World wars will cost the United States Government \$55,329,525 this fiscal year. That is, it will cost that amount if Congress does not eliminate some of the items that have been proposed.

Nobody begrudges a dollar of this amount that will be spent for the care of men disabled as a result of war wounds or illness. There are many of the men, some of them pitiful remnants of strapping youths who went into the trenches prepared to give their all, doomed to live out the rest of their lives in hospitals. They were brought back from Europe on hospital ships, helpless on stretchers or in wheel chairs, and they have remained tied to beds or the same chairs ever since.

Demand Good Care

These men gave without question and the people of the United States demand in no uncertain terms that they shall be well cared for as long as they live.

But their care does not take \$55,329,525 nor the major portion of that amount. On June 7, 1924, the law was changed so that any veteran of any war can turn to the government for hospital care and treatment for any injury or any disease even though the condition requiring hospital care did not arise from or have even a presumed connection with war service.

As a result of this change in the law 76 per cent of the total admissions to government hospitals in the fiscal year 1931 were for the admission of nonservice-connected cases, and the percentage is steadily rising each year. It is estimated that \$39,000,000 of the amount asked for this year is for the treatment of just such cases. Some of the men are Spanish War veterans, but the vast majority are World War ex-soldiers.

Travel Pay

Take a look at what the government provides out of this \$39,000,000.

By far the greater number of veterans seeking hospitalization live in places away from the locations of the hospitals. The travel expense of the veteran asking treatment is paid to and from the place where medical examinations are conducted to determine their degree of disability and need of treatment.

A further travel expense is allowed to and from the hospitals if it is determined that they are in need of hospital care. They are cared for at the hospital, operated upon if necessary, clothed and fed while there, examined by specialists who are paid a fee if they are not on the regular pay roll, and buried if they do not recover.

In addition, other examinations are allowed if necessary and out-patient treatment given after they can be discharged if they are not fully recovered. Furthermore, in the discretion of the administrator, they are allowed a per diem of \$2.65 above travel and other expenses while traveling and under observation.

No Question of Pay

There is not a word in the Act anywhere that limits these facilities to veterans unable to pay their own way at a private hospital. There is not a word in the Act that provides these facilities only after municipal, county or state facilities are determined to be so crowded the veteran cannot be treated there.

Originally the bill passed when the peak of treatment of war cases was over and there were many

* Editor's Note.—For further discussion of hospital costs, see pages 199 and 204 of this issue of California and Western Medicine.

vacant beds in government hospitals. The bill permitted treatment "where existing facilities permit" and it was left to the discretion of the administrator to determine this fact.

Later it was changed so that any veteran could demand as his right such treatment. This meant more hospitals and more beds until General Hines, in charge of government pension affairs, estimates that eventually it will demand the adding of 100,000 additional beds at an estimated cost of \$140,000,000 a year.

League Opposed

The National Economy League, composed almost entirely of ex-service men who fought in France, declares that it cannot see the slightest justification for the hospitalization of veterans whose disabilities were incurred in civil life and have nothing to do with war service.

It says it calls for a vast expense entailing a heavy burden of taxation on the people and seeks not only the elimination of \$39,000,000 from this item of the proposed bill, but also the repeal of the Act that permits such free treatment.

And how this Act is abused! Walter Reed Hospital in Washington, D. C., is the largest of the army general hospitals and has a list of specialists in different lines. Its records will disclose case after case of men, amply able to pay their own way in a private institution, who have been operated on for serious diseases at government expense.

Incidentally, in this connection, members of Congress take advantage of the same legalized abuse and use that institution themselves.—Los Angeles Times.

TWENTY-FIVE YEARS AGO*

EXCERPTS FROM OUR STATE MEDICAL JOURNAL

Vol. V, No. 9, September, 1907

From some editorial notes:

Aid Our Friends.—It is of advantage to readers of a publication to place before them advertisements of good articles and new things as they come on the market. There is no reason why a medical journal should not extend the same privilege to its readers and let them see what manufacturers have to say in their own behalf about their goods, so long as the goods are honest and the statements are kept within the range of probability. For these reasons, and for others, the journal has always opposed the argument that there should be no advertising pages in a scientific or medical journal. And, furthermore, the addition of advertising pages and the receipt of the revenue derived from them, permit of extending the size of the journal, improving the quality of its general make-up, etc. But the manufacturer is in the business to sell goods; he puts his advertisement in your journal with the hope that you will read it, be interested in what he says of his goods, and at least try them. He pays money to your state society for that purpose and so shows his faith in the journal of the society and in the interest of its members. We think he is amply justified, but we ask your further and continued interest and support. Do not hesitate to send for information, catalogs, samples, etc., pertaining to anything in which you may be interested. . . .

Frightful Condition.—The condition of things in the county health institutions of the greatest city on the Pacific Coast, as indicated in the report which the journal gladly publishes elsewhere in this issue, can only be regarded as frightful. The City and County Hospital would be a disgrace to medieval times; for years it has been such a menace to the lives of those who live in it that very many graduates have refused

to accept its internships, and more than one case of death from tuberculosis has been practically traced to the thoroughly infected and infested "hospital." Just think of the menace to those who are sick or injured and must of necessity seek aid in such a filthy institution! At the present time this, the City and County Hospital of San Francisco, is the worst focus of bubonic plague in the city! . . .

Illegal Practitioners.—We publish this month the first report from the committee of the Board of Examiners having in charge that portion of the new law which requires the board to prosecute violations of the statute. It must be understood that it is one thing to require certain things to be done and quite a different thing to do them—especially when no machinery is provided. We understand that there is practically no money available for this part of the work of the board, and without money but little can be done. Detectives must be employed to get evidence and attorneys must be hired to conduct the prosecutions; all of which necessitates the expenditure of money. . . .

Pure Food Commission.—Again the journal calls your attention to the work and the suggestions of the Pure Food Commission of the state society. . . . In Pasadena and Los Angeles a decided improvement in the milk supply and the condition of some dairies is reported, and in Fresno, where the local board has been active for several years, conditions are said to be very much above the average. . . .

From an article on "Theophyllin as a Diuretic" by Albion Walter Hewlett, M.D., San Francisco.

Theophyllin is beyond doubt the most remarkable diuretic that we possess today. Though the drug occurs naturally in tea in small amounts, its wide medicinal use has only been made possible by its synthetic preparation. This synthetic product is placed on the market under the trade name of theocin.

From an article on "The Physiology of Glycosuria" by Martin H. Fischer, M.D., Oakland.

The presence of dextrose in the urine is so greatly the predominating sign of a diabetes mellitus that a brief study of the physiology of glycosuria may well be regarded as a prerequisite to an intelligent understanding of the disease itself. . . .

CALIFORNIA STATE DEPARTMENT OF PUBLIC HEALTH

By GILES S. PORTER, M.D.
Director

Ban Placed on Clams as Well as Mussels.—Laboratory examinations made under the direction of Dr. Karl F. Meyer of the Hooper Foundation for Medical Research, acting in cooperation with the California Department of Public Health, show that all clams (with the exception of mudclams) as well as mussels from certain sections along the coast of California are now poisonous. A quarantine has therefore been established by which the sale or offering for sale of all clams, with the exception of mudclams, is prohibited in the coastal area from Monterey County to the Klamath River in Del Norte County, excluding the bay of San Francisco. This quarantine will be in force until September 30, 1932. A similar quarantine was placed upon mussels May 28 to continue until September 30, also. Mussels and clams in the San Francisco Bay waters do not show signs of toxicity, as do these shellfish in ocean waters. For this reason, San Francisco Bay shellfish are not included in this quarantine order.

This does not affect, however, a permanent quarantine on clams in San Francisco Bay which was established by the California Board of Public Health May 28 because of sewage pollution of San Francisco Bay

* This column strives to mirror the work and aims of colleagues who bore the brunt of state society work some twenty-five years ago. It is hoped that such presentation will be of interest to both old and recent members.

waters. The taking, sale, or offering for sale of all clams, including soft-shell or mudclams, from San Francisco Bay and tributary sloughs in the counties of Alameda, San Francisco, San Mateo, Santa Clara, Contra Costa, Solano, Sonoma, and Marin counties is prohibited, with the exception of the following areas in Marin County: for one mile each side of California Point; the south shore of Tiburon Peninsula on Richardson Bay for one mile north of Belvedere; between McNear Point and Gallinas Creek northerly from McNear Point.

There is always danger in eating shellfish which may be taken from sewage-polluted waters, and the permanent quarantine on clams was established because of the danger of contracting typhoid fever through the consumption of clams taken from such places. This condition is quite different from the toxic condition that now prevails in mussels and clams. . . .

A Spade and an Ax.—Individuals who enter the government forest reserves during the summer season for the purpose of camping are required to take with them a spade and an ax. These useful tools are primarily intended for use in fire prevention, but the spade has an important use from the standpoint of sanitation. A spade, in fact, is an absolute necessity in the maintenance of camp sanitation in those places where no sanitary equipment is provided. It should be used for burying all remnants of food, empty tin cans, old bottles, body waste, and other undesirable material of every description. Accumulations of garbage attract flies and other insects. Garbage should be buried quickly and it should be buried deep, in order that it may not be disinterred by predatory animals. A spade is useful, too, for extinguishing a camp fire. The coals of a camp fire, if buried under six or eight inches of dirt, have little chance to flare up and set fire to the forest. Many of the best and most attractive camping places in the West have been destroyed by campers who were careless in extinguishing their camp fires. In order to have attractive camping places for future use, it is essential that they be not destroyed by fire.

Orange County Health Unit Complete.—With the taking over of the health work of Newport Beach, the Orange County Health Department now covers all territory in Orange County, both urban and rural. Dr. K. H. Sutherland is health officer of Orange County and under his administration the county will now be able to provide full-time public health service to all residents of the county.

The centralization of public health activities in a single unit is highly advantageous to all residents of the county, and the people of Newport Beach are to be congratulated upon this forward action which they have taken.

Carelessness in Making Birth Certificates.—A birth certificate is one of the most important of all legal papers. It is doubtful that any other document possesses greater inherent value to its owner. Its significance is great because it provides its owner with definite proof of his status as a citizen of this republic. It may have great monetary value and its ownership enables the possessor to enjoy many privileges which, without it, might be denied him.

Strange to state, many birth certificates are grossly incorrect and every day in the Bureau of Vital Statistics many affidavits are received which must be applied to correct birth certificates already filed. It is lamentable that many physicians and hospitals exhibit gross carelessness in the preparation of this important document. Sometimes the errors involved are not discovered until many years after the filing of the certificate, at a time when it may be extremely difficult to secure the necessary affidavits to establish the fact of error. It is astounding that on many birth certificates the sex is recorded inaccurately. This type of error has caused an enormous amount of confusion to many individuals who have found that, officially, they are of the opposite sex. . . .

BOARD OF MEDICAL EXAMINERS OF THE STATE OF CALIFORNIA

By CHARLES B. PINKHAM, M. D.
Secretary-Treasurer

News Items

Investigation report relates that on August 12 Hjalmar Groneman, licensed chiropractor, was found guilty before San Francisco Municipal Judge Fritz for violation of Sections 7 and 15 of the Chiropractic Act and was sentenced to thirty days in the county jail, execution of judgment being suspended. "The specific offense charged against Groneman in violation of Section 7 (of the Chiropractic Act) was prescribing. . . . The violation of Section 15 (of the Chiropractic Act) was in using the prefix 'Dr.' on his stationery, without following it immediately with the suffix 'D. C.' or the word 'Chiropractor.'" Section 7 of the Chiropractic Act states that a license to practice chiropractic "shall not authorize the use of any drug or medicine now or hereafter included in materia medica." In the case of Millsap vs. Alderson, 63 C. A. D. 518-532, materia medica has been defined as "substances employed as remedial agents." That licensed chiropractors have no right to use medicinal agents for remedial purposes is again set forth in *People vs. Machado*, 279 Pacific 228.

"Dr. G. E. Grosse, chiropractor, was yesterday afternoon held for trial in Superior Court on a charge of performing an illegal operation on Mrs. Jasper Crowe, 34 Benita Avenue, Santa Cruz. . . ." (Press dispatch dated Santa Cruz, August 9, printed in the *Oakland Tribune*, August 9, 1932.)

"Jules Ross, brought back from Palo Alto, California, pleaded guilty today to attempted forgery in the third degree. The plea was accepted to cover five indictments of forgery in connection with charges that Ross in 1928 had sold forged high school certificates to students, enabling them to enter college in the city of New York. He was remanded to Tombs Prison for sentence August 24. . . ." (Associated Press dispatch, dated New York, August 10, printed in the *San Francisco Call-Bulletin*, August 10, 1932). Another evidence that watchful care against the bogus diploma merchant is still necessary.

A new subjective symptom was disclosed in the following press dispatch dated Los Angeles, August 9, printed in the *San Francisco Examiner* of August 9, 1932: "When a witness commits perjury, a red flame shoots out of his mouth, but only those trained in the psychic can see the manifestation. This was disclosed today as one of the 'secrets' of the late Dr. Edgar L. Colburn, over which two factions of the Colburn Biological Institute are battling in Superior Court. During cross-examination today of a member of the cult, attorneys argued over which way he should face. Both wished to see if any flames leaped from his mouth."

"Dr. J. C. Arnott of Culver City pleaded guilty before Federal Judge Louderback yesterday to giving a false certificate to R. Bush, a war veteran, stating that he had examined Bush prior to 1925 and found him to be tuberculous. The doctor was placed on probation for a year" (*San Francisco Examiner*, July 23, 1932).

The records show that on July 19, 1932, Raymond DeSilva was found guilty in the Justice Court of San Jose on a charge of violation of the Medical Practice Act and was fined \$150, with the alternative of one day in jail for each \$5 unpaid. He was remanded to the custody of the sheriff, pending payment of fine. (Previous entry, July, 1932.)